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THOMAS PARRAN, *Surgeon General*

Editor: J. R. HELLER, Jr., *Medical Director*
Chief, Venereal Disease Division

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Cooperative Separation Center Referral Program

U. S. Army—Public Health Service—State Health Departments

At all U. S. Army Separation Centers separatees receive a serologic test for syphilis as part of the terminal physical examination. The number of positive serologic tests for syphilis found approximates that occurring in a civilian group of similar composition. The Army retains and treats all personnel who are detected as having infectious syphilis.

A small percentage of separatees are found to have a positive or doubtful serologic test without a history of previous treatment for syphilis. U. S. Public Health Service representatives stationed at each separation center immediately inform the separatees of the laboratory findings. Those with doubtful tests are referred to their private physician or local health department for further study. Those with positive blood tests are advised of the immediate need for further diagnostic procedures and are offered this service at rapid treatment centers where treatment is administered, when indicated, before the separatee returns home.

Certain of these individuals will have become seronegative upon reexamination at the rapid treatment center. The positive findings in the first serologic test probably represent technical false positive results or biologic false positive reactors that have reversed to seronegativity in a short period of time, roughly 3 to 7 days.

Those individuals in whom the positive serologic test for syphilis persists, but who have no clinical or historical evidence of the disease, are not diagnosed but are advised to report to their family physician or local health department for further study during the following 3 months' period. If the blood remains persistently positive, the separatee may be either a latent syphilitic or a biologic false positive reactor and will require individual study. Most biologic false positive reactors will have become seronegative within 3 months. The biologic false positive reactors form a larger proportion of the separatees with positive serologic findings than would be expected in a comparable civilian group. This was anticipated by the U. S. Army and the Public Health Service, not because there was not a uniformly high level of performance of tests and satisfactory reagents and antigens used, but because there was a greater opportunity for the development of biologic false positives in Army personnel. Separatees have been subjected to a wide range of diseases, conditions, and circumstances which produce biologic false positive reactions. Malaria, relapsing fever, rat-bite fever, filiariasis, upper respiratory infections, and pneumonia are some of the diseases to which soldiers have been exposed. Military personnel have also been subjected to a series of immunizations and vaccinations which are known to produce biologic false positive reactions (observation of a limited number of individuals who received immunizations for influenza indicates that this produces few, if any, false

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positive reactions). Therefore, prolonged observation in those persons with a positive serologic test for syphilis, unaccompanied by clinical or historical evidence of the disease, is necessary and is one of the principal reasons for the inauguration of the Cooperative Referral Program.

On the other hand, the diagnosis of syphilis cannot be ruled out because of the absence of clinical or historical evidence. The syphilis acquired may have been symptomless or the soldier may have acquired gonorrhea and syphilis concomitantly and received penicillin for the gonorrhea, thereby "masking the syphilis." Likewise, during the syphilis incubation period the soldier may have received penicillin for gunshot wounds, upper respiratory infections, pneumonia, or a variety of other nonsyphilitic conditions, thus tending to abort the early clinical manifestations of syphilis.

The Cooperative U. S. Army-Public Health Service-State Health Department Referral Program has paralleled the Selective Service Blood Testing Program as a case-finding instrument. Furthermore, it has made a real contribution to the control of syphilis, since the rapid treatment centers have offered immediate and complete treatment to the separatee before his return home.

—The Editors.

The Synergistic Action of Penicillin and Mapharsen (Oxophenarsine Hydrochloride) in the Treatment of Experimental Syphilis

Harry Eagle, Senior Surgeon, Harold J. Magnuson, Passed Assistant Surgeon, and Ralph Fleischman, Assistant Bacteriologist, United States Public Health Service

Although penicillin is effective in the treatment of early syphilis (*1*), the results so far available (*2*) indicate that with the schedules of administration hitherto used (e. g., intramuscular injections of the sodium salt at 3-hour intervals over a period of 4 to 8 days, to a total of 1.2 to 2.4 million units), the incidence of treatment failure may equal and perhaps exceed that obtained with semi-intensive combined treatment with mapharsen[1] and bismuth (*3*). Under such circumstances, efforts are in order to enhance the therapeutic efficacy of penicillin either by appropriate modifications of the treatment schedule, the type of penicillin used, and the vehicle in which it is suspended, or by the use of other antisyphilitic drugs in conjunction with the penicillin. The latter approach is particularly promising in view of the demonstration (*3*) that moderate doses of bismuth and mapharsen used in conjunction are far more effective than even large doses of the arsenoxide used alone. The cumulative proportion of treatment failures in cases of early syphilis receiving a total of 21 mg. per kilogram or more of mapharsen, averaging 26 mg. per kilogram, was 28 percent, and this was not significantly reduced on further increasing the total dosage; while in patients receiving the same amount of arsenical, plus an average of 9 injections of bismuth, the corresponding percentage of treatment failures was 9.3.

As will be shown in the present paper, a qualitatively similar and quantitatively even more pronounced additive effect was found when penicillin was supplemented by oxophenarsine hydrochloride in the treatment of experimental syphilis. Small fractions of the curative doses of penicillin and of mapharsen were curative when used in conjunction. The two drugs together were so much more effective than either alone as to suggest a synergistic rather than merely additive effect. The clinical implications of these observations are discussed in the text.

METHODS AND MATERIALS

Rabbits were inoculated intratesticularly with the Nichols strain of S. pallida. Five to seven weeks later, and after infection had been confirmed by darkfield examination of the testicular syphiloma, the animals were treated as discussed in the following paragraphs.

The 5 schedules of treatment used in the present study are listed in table 2. The penicillin (aqueous solution of commercial sodium salt) was given by 2 different methods. One method consisted of 2 intramuscular injections daily at 6-hour intervals, continued for 4 days. On that schedule penicillin was tested alone, and supplemented by 2 different dosages of mapharsen (4 consecutive daily intravenous injections of either 0.15 mg. per kilogram or 0.4 mg. per kilogram).

From the Venereal Disease Research and Postgraduate Training Center of the U. S. Public Health Service, Johns Hopkins Hospital, Baltimore 5, Md.

The work described in this paper was done under a contract, recommended by the Committee on Medical Research, between the Office of Scientific Research and Development and the Johns Hopkins University. The penicillin was provided by the Office of Scientific Research and Development from supplies assigned by the Committee on Medical Research for investigations recommended by the National Research Council.

[1] Although mapharsen (oxophenarsine hydrochloride, U. S. P.) was the particular preparation used in the present experiments, any of the analogous products which form 3-amino-4-hydroxyphenylarsenoxide in neutral solution (mapharsen, clorarsen, phenarsine hydrochloride) would have given the same results.

TABLE 1.—*The therapeutic efficacy of mapharsen in rabbit syphilis, given intravenously in 4 consecutive daily injections*

Daily dosage, mg./kg.	Number rabbits treated	Cured	Treatment failures	Results recalculated after Reed and Muench (5)			Curative dose, mg./kg.	
				Cured	Failed	Percent cured	CD50	CD90
2	6	6	0	35	0	100		
1.5	7	7	0	29	0	100	per injection	
1	13	12	1	22	1	98	0.61	0.75
0.75	8	8	0	10	1	91	total	
0.5	7	1	6	2	8	20	2.4	3.0
0.4	6	0	6	1	14	6.7		
0.375	8	1	7	1	21	4.1		
0.25	8	0	8	0	29	0		

It is to be emphasized that these were in themselves subcurative doses of arsenical (table 1). The second penicillin schedule consisted of 5 injections daily at 4-hour intervals, continued for 4 days, and was tested both alone and supplemented by a subcurative dose of mapharsen (0.4 mg. per kilogram once daily over the same 4 days). Because mapharsen and penicillin in high concentration were found to be chemically incompatible, as judged by a slight but definite inactivation of penicillin in mixtures of the two, the daily intravenous injection of arsenical was always given halfway between 2 intramuscular injections of penicillin. Under such circumstances, the 2 drugs were never simultaneously present in concentrations found to interact in vitro.

In each of the 5 schedules, from 5 to 9 animals were treated at each of 4 to 6 different dosages of penicillin in order to establish the curative dose, expressed either as the CD_{50} or CD_{90} levels of penicillin, i. e., the dosage necessary to cure 50 and 90 percent of the animals, respectively.

As a criterion of cure, both popliteal lymph nodes were removed 6 months after the completion of treatment (cf. (*4*)), and emulsified in 1 to 2 cc. of diluted rabbit serum (equal parts of serum and salt solution). Approximately 0.25 cc. of the emulsion were inoculated intratesticularly into both testes of 2 rabbits. The testes of the transfer animals were examined at weekly intervals over a period of 75 days, and if they remained negative, were removed, emulsified, and examined by dark field 90 to 105 days after inoculation. Over the hot summer months, transfer animals were kept in an air-conditioned room at 65° to 70° C. in order to avoid the inhibitory effect of summer temperatures on the development of primary lesions. In order to expedite the experiment by freeing additional cage space, in some of the animals in which cure was not anticipated, a single node transfer into 1 animal only was done 6 weeks after the end of treatment. If the node at this time proved noninfectious, the second popliteal node was removed 6 months after treatment and the emulsion inoculated intratesticularly into 2 rabbits as the ultimate criterion of cure (cf. (*4*)).

EXPERIMENTAL RESULTS

The experimental data on which the following discussion is based are presented in detail in table 2. For purposes of clarity, they have been summarized in table 3, expressed as the CD_{50} and CD_{90} dosages of penicillin, i. e., those required to cure 50 percent and 90 percent of the animals, respectively.

Series A.—Sodium penicillin injected alone twice daily for a period of 4 days proved relatively ineffective in the treat-

Table 2.—*The synergistic action of penicillin and axophenarsine hydrochloride (mapharsen) in the treatment of experimental (rabbit) syphilis*

Dosage of oxophenarsine hydrochloride, mg./kg.		Total dosage of penicillin, units/kg.	Number rabbits treated	Number rabbits cured	Number rabbits not cured	Results recalculated after Reed & Muench (*5*)			Curative dose, units per kg.	
Per injection	Total					Cured	Failed	Percent cured	CD_{50}	CD_{90}
Series A. Sodium penicillin injected twice daily, at 6-hour intervals, for 4 days; mapharsen injected once daily, midway between the 2 injections of penicillin										
0	0	64,000	6	4	2	7	2	78	44,000	80,000±
		32,000	6	2	4	3	6	33		
		16,000	4	1	3	1	9	10		
		8,000	6	0	6	0	15	0		
0.15	0.6	32,000	6	3	3	17	3	85	6,100	32,000±
		16,000	6	5	1	14	4	77		
		8,000	6	4	2	10	6	62		
		4,000	6	3	3	5	9	36		
		2,000	5	2	3	2	12	14		
		1,000	5	0	5	0	17	0		
0.4	1.6	16,000	5	5	0	33	0		800	4,000
		8,000	7	5	2	28	2	93		
		4,000	7	7	0	23	2	92		
		2,000	7	5	2	16	4	80		
		1,000	7	4	3	11	7	61		
		640	7	4	3	7	10	41		
		320	5	3	2	3	12	20		
		0	6	0	6	0	18	0		
Series B. Sodium penicillin injected 5 times daily, at 4-hour intervals, for 5 days; mapharsen injected once daily, midway between 2 injections of penicillin										
0	0	20,000	7	7	0	28	0	100	1,850	8,400
		10,000	7	6	1	21	1	95		
		5,000	9	6	3	15	4	79		
		2,000	7	3	4	9	8	53		
		1,000	9	4	5	6	13	32		
		500	5	2	3	2	16	11		
		200	2	0	2	0	18	0		
0.4	1.6	10,000	6	6	0	36	0	100	320	1,000
		5,000	6	6	0	30	0	100		
		2,000	7	5	2	24	2	92		
		1,000	9	9	0	19	2	91		
		500	8	7	1	10	3	77		
		200	6	3	3	3	6	33		
		100	2	0	2	0	8	0		

Commercial sodium penicillin was used throughout, in aqueous solution, and injected intramuscularly on the schedules indicated in the table. Mapharsen was injected intravenously once daily for 4 days, at the dosages indicated in the table. The amounts of penicillin necessary to cure 50 percent and 90 percent of the animals (CD_{50} and CD_{90}, respectively) were calculated from the experimental data by the method of Reed and Muench (*5*).

ment of experimental rabbit syphilis. A total dosage of 44,000 units per kilogram was required to cure half the animals, and approximately 80,000 units per kilogram to cure more than 90 percent.

As little as 0.15 mg. per kilogram of mapharsen injected once daily over the same 4 days caused a striking decrease in the amount of penicillin necessary for cure, the CD_{50} dose becoming 6,000 units per kilogram, or one-seventh of the corresponding curative dose with penicillin alone. It is to be emphasized that this dosage of arsenical is itself wholly ineffective. With 4 consecutive daily injections, the CD_{50} dose of mapharsen had previously been shown to be a total of 2.4 mg. per kilogram (*6*), or 0.6 mg. per kilogram daily; and the CD_{90} dose was a total of 3 mg. per kilogram, or 0.75 mg. per kilogram daily (cf. table 3). Dosages of arsenoxide up to and including 0.25 mg. per kilogram daily, 1.6 times that used in conjunction with penicillin in the foregoing experiment, were wholly ineffective. It follows that one-fourth of a CD_{50} dose of mapharsen and one-seventh of a CD_{50} dose of penicillin constituted a CD_{50} dose when used in conjunction.

An even more striking decrease in the curative dosage of penicillin was effected by increasing the arsenoxide dosage to 0.4 mg. per kilogram daily, an amount which alone was ineffective (cf. table 1). The CD_{50} level of penicillin now became 800 mg. per kilogram and the CD_{90} dose, 4,000 units per kilogram, one-fifty-fifth and one-twentieth of the corresponding curative levels of penicillin used alone.

Series B.—As shown in section B of table 3, the curative action of penicillin was enhanced by small subcurative doses of mapharsen even when the penicillin was administered by an effective schedule, in this case, 5 injections daily administered at 4-hour intervals, to a total of 20 injections. The CD_{50} and CD_{90} dosages of penicillin alone on that schedule were 1,850 and 8,400 units per kilogram, respectively. The daily injection of 0.4 mg. per kilogram oxophenarsine hydrochloride over that same period reduced the CD_{50} dosage to 320 and the CD_{90} dosage to 1,000 units per kilogram, one-sixth and one-eighth of the corresponding curative doses of penicillin when used alone.

TABLE 3.—*The synergistic action of penicillin and oxophenarsine hydrochloride (mapharsen) in the treatment of experimental (rabbit) syphilis (data of table 2)*

Dosage of mapharsen, mg./kg.	Curative dose of penicillin, units/kg. total		Fractions of curative dose of penicillin and mapharsen effective when used in combination			
			CD_{50}		CD_{90}	
	CD_{50}	CD_{90}	Mapharsen	Penicillin	Mapharsen	Penicillin
Series A. Sodium penicillin injected twice daily, at 6-hour intervals, for 4 days; mapharsen injected once daily, midway between the 2 injections of penicillin						
0	44,000	80,000	0	1	0	1
0.15	6,100	32,000	1/4	1/7	1/5	2/5
0.4	800	4,000	2/3	1/55	1/2	1/20
Series B. Sodium penicillin injected 5 times daily, at 4-hour intervals, for 5 days; mapharsen injected once daily, midway between the 2 injections of penicillin						
0	1,850	8,400	0	1	0	1
0.4	320	1,000	2/3	1/6	1/2	1/8

DISCUSSION

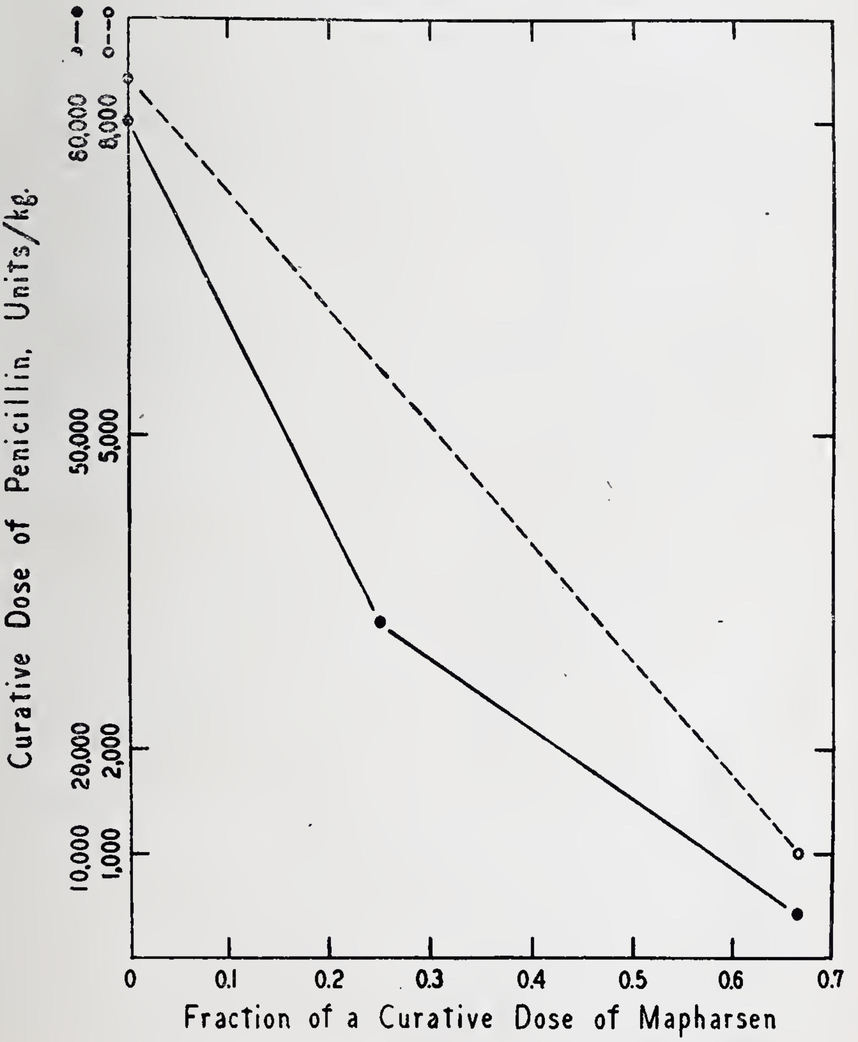
The foregoing experimental data, graphically summarized in the chart, clearly indicate that oxophenarsine hydrochloride and penicillin are not only additive, but actually synergistic in their spirocheticidal action. Dosages of each which were a fraction of the CD_{50} or CD_{90} levels, and which alone were wholly ineffective, proved curative when used in combination.

One can only speculate as to the mechanism of that synergistic action. Phenyl arsenoxides are known to act on the organisms directly (*7*), presumably by blocking essential –SH groups, perhaps –SH–containing enzyme proteins as described by Singer and Barron (*8*). When syphilitic rabbits or men are treated with mapharsen, as little as one-tenth of the curative dose kills most of the invading organisms. This is evidenced by the immobilization and disappearance of spirochetes in the primary lesions, which may actually heal; weeks or even months may elapse before the few surviving organisms multiply sufficiently to become demonstrable, either in a recurrent lesion or by lymph node transfer. By far the greatest part of treatment is devoted to killing the small number of spirochetes which are relatively resistant to the arsenical, and which survive the first one or two injections.

A direct spirocheticidal action has been demonstrated in the case or penicillin for cultured S. pallida (Reiter) (*9*), and it may well be similarly spirocheticidal for the pathogenic organisms. Unlike mapharsen, the time over which penicillin is administered is as important as the total dosage; but with penicillin, as with mapharsen, as little as one-tenth of the curative dose, *properly distributed in time*, kills most of the spirochetes in the infected animal. The bulk of penicillin therapy is devoted to the eradication of a small number of relatively resistant organisms.

Under such circumstances, a reasonable explanation may be offered for the synergistic action of small and in themselves subcurative doses of penicillin and mapharsen when used in conjunction. The few organisms which are relatively resistant to either penicillin or arsenical, and which would survive a subcurative dose,

The effect of small doses of mapharsen on the total curative dose of penicillin (CD_{90}) in rabbit syphilis



(●—●) Penicillin injected twice daily for 4 days, arsenical daily.
(O- - -O) Penicillin injected 5 times daily for 4 days, arsenical daily.

In the above chart, the abscissas ("Fraction of a Curative Dose of Mapharsen") have been expressed in error as fractions of the CD_{50} instead of the CD_{90} dose of mapharsen. The amount of mapharsen now plotted as, e. g., 0.67 curative doses should have been plotted as 0.5.

are probably normally susceptible to the second drug, with a different mode of action. These potentially surviving spirochetes are therefore killed by subcurative doses of the second compound in the same proportion as the organisms in an untreated animal. A subcurative dose of drug A which kills, e. g., more than 99 percent of the organisms, superimposed on a subcurative dose of drug B, which alone would also kill more than 99 percent of the organisms, may together effect biologic sterilization and cure. It is further possible that the few potentially surviving spirochetes to drug A, although viable, are temporarily seriously damaged by its action. Without further injury they would recover; but even small doses of a second drug, less than would normally be necessary, may suffice to bring about the death of the injured organisms.

Whatever the explanation for the synergistic action of penicillin and mapharsen, the clinical implications of the experimental data are clear. Preliminary data in the treatment of human syphilis indicate that with penicillin alone, an increase in the total dosage beyond a certain level does not further improve the results obtained. The foregoing experimental data indicate that if a given schedule of treatment with penicillin, at a dosage of, e. g., 2.4 million units, cures 85 percent of cases of secondary syphilis, the same results could probably be achieved with a fraction as much penicillin by the simultaneous use of small, subcurative doses of mapharsen. More important, if one keeps the penicillin dosage at the same level, the addition of subcurative doses of mapharsen, bismuth, or both, would probably reduce the proportion of treatment failures, and yield therapeutic results well in excess of those possible to achieve with penicillin alone.

Clinical studies are now in progress under the auspices of the United States Public Health Service and the Penicillin Panel of the Sub-Committee on Venereal Diseases of the National Research Council which may provide information on both these points. In one study, patients have been treated with a total of 1,200,000 units of sodium penicillin, (60 injections of 20,000 units per kilogram, at 3-hour intervals) plus 320 mg. of mapharsen or its analogues (8 daily injections of 40 mg. each). A second group of patients has been treated with 600,000 units of penicillin (60 injections of 10,000 units each, at 3-hour intervals) plus 8 daily injections of mapharsen at 1 mg. per kilogram, and 3 injections of bismuth subsalicylate at 0.2 gm. A third group of patients is being treated with 1,200,000 units of penicillin, given in 60 injections of 20,000 units, plus 5 injections of oxophenarsine at 1 mg. per kilogram each, and 3 injections of bismuth subsalicylate, administered simultaneously over the same total time period.

SUMMARY

1. In early rabbit syphilis, sodium penicillin given intramuscularly twice daily for 4 days cured half the animals at a total dosage of 44,000 units per kilogram, and 90 percent of the animals at a dosage of approximately 80,000 units per kilogram.

With mapharsen alone, injected once daily for 4 days, the CD_{50} dose was 2.4 mg. and the CD_{90} dose 3.0 mg. per kilogram. A total of 1 to 1.6 mg. per kilogram cured only 1 of 21 animals.

The simultaneous administration of penicillin and otherwise ineffective doses of mapharsen (0.15 mg. per kilogram daily for 4 days), reduced the CD_{50} level of penicillin from 44,000 units per kilogram to 6,100, and the CD_{90} dose from 80,000 to 32,000. With somewhat larger but still subcurative doses of arsenical (0.4 mg. per kilogram), the CD_{50} and CD_{90} dosages of penicillin were further reduced to 800 and 4,000 units per kilogram, respectively, one-fifty-fifth and one-twentieth the corresponding values in the absence of arsenical.

2. When sodium penicillin was injected intramuscularly 5 times daily at 4-hour intervals for 4 days, the CD_{50} dose was 1,850 units per kilogram, and the CD_{90} was 8,000 units per kilogram. The concurrent administration of mapharsen in subcurative doses (0.4 mg. per kilogram daily for 4 days) reduced the CD_{50} and the

CD$_{90}$ doses of penicillin to 320 and 1,000 units per kilogram, respectively. These were one-sixth and one-eighth of the corresponding values without arsenical.

3. It follows that penicillin and mapharsen are synergistic in the treatment of experimental syphilis, and may well be similarly synergistic in man. Under such circumstances, small amounts of penicillin supplemented by subcurative doses of mapharsen would be as effective as much larger doses of penicillin used alone. More important, the proportion of treatment failures in early syphilis cases not cured by penicillin alone may be significantly reduced by using mapharsen and penicillin in conjunction.

4. If penicillin and bismuth prove to be similarly synergistic, the optimum therapy for human syphilis may well consist of penicillin, mapharsen, and bismuth used in combination.

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San Francisco Industrial Venereal Disease Educational and Case-Finding Program

Richard A. Koch, M. D.,[1] Lawrence Arnstein,[2] and Arthur C. Painter [3]

INTRODUCTION

When a health department is confronted with the problem of disseminating venereal disease information, the organizations and media that can be used are so many and varied that much of the work becomes a matter of analysis of estimating where the time spent will give the greatest results. This analysis should be made in relationship not only to venereal disease control but also to the interrelationship and workings of the other divisions of a health department. Because there is usually a scarcity of health department personnel, every plan must be as efficient as possible so that the maximum results may be obtained from the manpower expended.

It was to achieve these results that the San Francisco Department of Public Health developed its labor-management venereal disease educational and case-finding program as a follow-up to the initial program conducted by the California State Department of Public Health (*1*). The method of the approach was based upon the theory that by directing our educational efforts toward labor we would have, as a foundation for the program, the support of its organization of over 300,000 men and women in the area. The program would be productive of case finding because of the number of people involved; and the official clinic, to which those having a positive serologic reaction would be referred, could act mainly as a diagnostic clinic and would not be overburdened with the treatment of noninfectious venereal disease since most of those examined would be able to pay for private medical care.

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[1] Chief, Division of Venereal Diseases, City and County of San Francisco, Department of Public Health.

[2] Executive Secretary, California Social Hygiene Association.

[3] Venereal Disease Educator, City and County of San Francisco, Department of Public Health.

We believed, therefore, our program would achieve a fivefold purpose as follows:

1. The dissemination of information about venereal diseases to a large organized group of the public.

2. The material reduction of a great volume of undiscovered, untreated, or inadequately treated syphilis.

3. The discovery of cardiovascular syphilis and central nervous system syphilis, which are industrial hazards.

4. The establishment of the health department as a confidential mediator between management and labor in industrial health.

5. The establishment of an adult health educational program.

An important factor of the program has been the utilization of the nonofficial agency, the local branch of the California Social Hygiene Association (an affiliate of the American Social Hygiene Association). The secretary of the association acted as an intermediary agent to assist the health department in contacting and securing the cooperation of both labor and management. This liaison was made possible because the board of directors of the association is composed of 40 men and women who are representative leaders of industry, finance, labor, medicine, and civic groups. Under the guidance and advice of the secretary, the members of this group individually offered wholehearted assistance to any administrative problem. Their contributions well illustrated the public health value of such community organization, not only from the point of view of venereal disease control but from every aspect of public health organization. Once the cooperation of industry and labor had been secured, the venereal disease educator, in consultation with the chief of the Division of Venereal Diseases, developed the educational and operational plans of the program.

The program was divided into three phases as follows: first, to gain the confidence of the labor unions in the objectives of the health department; second, to direct the confidence, once gained, into positive labor union action by introducing premembership serologic examinations; third, to effectuate the program at an industrial level where the facilities of management could be used, the health department acting as an unbiased mediator in developing the industrial health program.

PROCEDURE

In the initial phase of the program during 1939 and 1940, approximately 200 lectures were presented to the various local labor unions, and 8,000 members were given serologic examinations (*1*). Before the serologic survey was made, a special health bulletin was prepared, which was distributed by the local union to its constituent members. Two hundred thousand such bulletins were distributed to union members of both the American Federation of Labor and the Congress of Industrial Organization throughout the area. A sample bulletin follows:

> "GREETINGS: The San Francisco County Building and Construction Trades Council of the American Federation of Labor are cooperating with the California State Department of Public Health and the United States Public Health Service in an effort to find and stamp out syphilis among our members and their families. Syphilis is a highly contagious and dangerous disease. Many persons have syphilis without knowing they have it.
>
> "It can be spread through sexual intercourse. Mouth sores are dangerous, for

syphilis may be spread through kissing. Many babies contract syphilis from their mothers. Thousands of people have the disease without being aware of it.

"Syphilis is one of the greatest cripplers known to man. It is especially dangerous because a man can have it for years without knowing he has the disease and then be struck down by it. Syphilis, therefore, costs the worker real money, and if he has the disease he is more likely to be injured at work, and if he is injured he is likely to be sick three or four times as long as a man who does not have it. Therefore, syphilis really bites into his pay check in the end. It is important for each of us to know whether or not he has syphilis, and the only way to find out is to have a blood test made. This is why the Union has asked the health department to make these blood tests. We want to prevent the insanity, blindness, paralysis, heart disease, etc., which are suffered by many of those who have syphilis and are not treated in time.

"All those who are found to have syphilis and cannot afford treatment by a private physician will be furnished treatment by the health department. About 4 percent of industrial workers have been found to have syphilis. The health department recently examined members of the Contra Costa County and Alameda County unions and found 3½ percent of 4,000 persons blood tested to have syphilis. That means three or four cases of syphilis out of every hundred workers, or about 150 cases of syphilis were found through these examinations.

"It was important to find these cases. Everyone will be treated and the crippling effects of the disease prevented. A tremendous saving in human suffering will result. The San Francisco A. F. of L. wants its members and their families to be spared the ravages of the disease.

"The results of these tests will be strictly confidential between the members and the physicians of the health department, and neither the employer nor the union officials will be informed of the results.

"The doctors of the health department will be at 200 Guerrero Street, San Francisco, to conduct these blood tests for members of our union, on ____________."

In the initial phase of the program, 336 cases having a positive serologic reaction were discovered. One hundred and thirty-three (40 percent) were examined in health department clinics, 71.5 percent of the cases being previously ignorant of infection (*1*). The method used in handling these cases established the confidence of the labor unions in the ability of the health department to keep confidential all information received. Once this confidence was gained, the health department was ready to begin the second phase of the program, namely, to request the Executive Board of the California State Federation of Labor and the various labor councils involved to pass resolutions requesting member locals to blood test all new members. These resolutions were passed by all of the main American Federation of Labor councils as follows:

"*Whereas*, scientific investigations have shown that approximately one-half million persons in the United States contract syphilis each year and that, although a blood test will reveal the presence of the disease, half of the people who have syphilis do not know they are infected; and,

"*Whereas*, the net result of the majority of cases of undiscovered and untreated syphilis is insanity, blindness, heart disease, loss of hearing, paralysis or shortening of the span of life; and,

"*Whereas*, modern treatment quickly makes a patient incapable of transmitting his disease to others and continued competent treatment can cure most cases of syphilis, or, at the very least, can arrest further destructive progress of the disease; and,

"*Whereas*, undiscovered, untreated or inadequately treated syphilis strikes at the security of the individual by destroying his ability to earn a livelihood, endangers his fellow workers and is a drag upon the successful prosecution of the war as a cause of absenteeism, lost wages, decreased production, illness and accident; and,

"*Whereas*, it is the duty of every citizen to assist to the best of his ability the campaign to stamp out syphilis now being conducted by the United States Public Health Service, state and local public health departments; and,

"*Whereas*, experience in California and particularly in San Francisco has demonstrated that labor unions can materially assist the public health campaign to control syphilis by conducting educational programs among their members and in sponsoring the blood testing of union men and women; now, therefore,

"*Be it resolved*, that the Executive Board of the California State Federation of Labor in regular session in Hollywood on June 29, 1943, does hereby recommend to its affiliates that member unions require each applicant for membership to have a blood test made before admisison into the union, the result of such test to be a matter of strictest confidence between the examining physician and the applicant and under no circumstances to be revealed to the union or to the employer and to have no bearing upon the applicant's admission into the union; and,

"*Be it further resolved*, that the Executive Board bring to the attention of affiliated unions the fact that local public health departments are prepared to give blood tests without charge to the individual or to the union, and that the Board recommends that unions make arrangements with local public health departments to make tests for such applicants as do not wish to go to a physician in private practice; and,

"*Be it also further resolved*, that as a corollary to a program of blood testing applicants for union membership, the assistance of the California State Department of Public Health, local public health departments and the California Social Hygiene Association be secured in conducting an educational program among the entire union membership."

The education of labor unions was carried on through the use of the following media:

1. Informal presentation of the program to key individuals; namely, the members of labor union councils, the presidents of local labor unions, business representatives, secretaries, etc.
2. Formal discussions of the objectives of the program with executive boards.
3. Lectures and motion pictures presented to labor union councils and at local union meetings.
4. Establishment of union health committees within the various labor union councils and various local labor unions.
5. Articles in labor union newspapers.
6. Articles and news stories in the local press.
7. National publicity to support the local program.
8. Posters and pamphlets distributed in labor union halls.
9. Serologic surveys in labor union halls.
10. Enlistment of the labor unions in promoting serologic surveys and establishing educational programs in industrial plants.

Because the procedure of sending doctors and nurses to labor union halls to do serologic examinations is impracticable, except in the initial phase of such a program, and also because the establishment of the health department as a mediator between the labor unions and the employers in matters of industrial health was important, surveys at union meetings were discontinued, and by 1942 the final phase of the program was developed in the industrial plants with labor union approval.

The labor unions were requested to consent to the examination of their members through the facilities of management rather than through the facilities of the unions as had been our practice. Labor was, of course, skeptical of any program which related itself to physical examinations because at times these examinations had been used by management to exclude a man from the opportunity of making a living. Also, many industrialists would refuse employment to a person infected with syphilis. However, in view of the satisfactory operation of the labor union serologic surveys and as a result of personal contact of health officials with labor union leaders, agreements were secured for conducting serologic examinations through the facilities of management, provided the health department maintained its program of keeping all medical information confidential and not advising either management or labor unions of the results.

Union officials were assured that the individual results of the program would be kept confidential and that the health department would establish itself as an unbiased agent whose sole concern was the health of the worker. The health department, however, insisted upon the privilege of demanding occupational readjustment if the patient were found to have cardiovascular syphilis or neurosyphilis that would tend to jeopardize other workers. It was understood further by both management and labor that the health department would contact such an individual, advise him of the industrial hazard of his disease, and request him to change his occupation, offering him any facility which might be available to effectuate the change. However, the health department reserved the right, if the patient refused such an occupational change, to notify both management and labor of the industrial hazard the patient presented so that the patient could be removed from his hazardous occupation by management with the consent of labor.

Management was then approached in order to obtain use of its facilities for the purpose of venereal disease education and serologic surveys. Management was sold the program on the basis of the potential industrial hazard of undiagnosed cardiovascular syphilis and neurosyphilis, and of community service. Management was advised that it could materially assist in the control of venereal diseases and that the health department would pledge itself to the handling of those cases found to be industrial hazards. All of the initial educational and serologic programs were planned on the volunteer basis. No physical examinations were performed as part of the initial survey. Management was requested to permit the serologic specimens to be secured on the employer's time, as this was the only feasible way in which the program could be organized with the cooperation of the employees.

The following general approaches were used in securing the cooperation of management:

1. Presenting the program to the local Employers' Council.
2. Detailing the plan of operation to individual managers and operators of industrial plants.
3. Assuring management that there would be no labor union difficulties as a result of such a program.
4. Assuring management that the program would be executed with a minimum man-hour loss.
5. Assuring management the program would lead to increased employee morale.

The ideal educational and case-finding program would be one in which the maximum amount of education would be delivered through the use of posters, pamphlets, lectures, motion pictures, and house organs, resulting in approximately 100 percent employee participation. We believe that this type of program has caused management to be unenthusiastic because attention was not given to its problem of maintaining production with as little loss of man-hours as possible. When the entire personnel of the plant is assembled to hear a health lecture and to see a motion picture, the man-hour loss before the survey starts has already reached at least one-half hour per employee. The San Francisco Department of Public Health took the attitude that it was a guest in the industrial plant and that it must win the respect of management by operating with a high degree of efficiency in regard to employee man-hour loss. It was to gain this efficiency that a streamlined educational approach was used, even though we felt it would result in a lower percentage of response.

PLATE 1

There Is
An Enemy Agent
In This Plant!!

- This agent destroys thousands upon thousands of the men and women so badly needed on our production lines.
- It lowers our production effort at a time when fighting men need every ship, every gun, everything we can give them . . . now.
- It kills men and women at their jobs.
- It threatens our pay checks and costs labor millions of dollars every year.
- This enemy is syphilis!!

* * *

★ Issued by the Metal Trades Council in cooperation with the Bethlehem Steel Company, California Social Hygiene Association, and the San Francisco Department of Public Health.

To begin the program in the industrial plant, the venereal disease educator assembled the personnel managers, superintendents, and foremen and gave a brief discussion on venereal diseases and the objectives of the survey so that they, in turn, could answer questions of the employees, and create enthusiasm for the survey. Where plant employees were members of labor unions, these organizations were contacted and the aid of the business agent was enlisted in order to increase the participation of union membership in the survey. In every case, this assistance was given, and in our opinion this cooperation was due to the initial phase of the program.

A series of four "throw-aways" was planned (plates 1, 2, 3, 4). Each of these was designed to give progressive education leading to the survey and to be read within 20 seconds. Their distribution was started 8 days before the beginning of the survey, and the "throw-aways" were handed out to the employees or attached to their time cards every other day. On the days the "throw-aways" were distributed, posters corresponding in content were placed in strategic locations throughout the plant. Whenever

PLATE 2

Syphilis The Saboteur

- ▶ 40 out of every 1,000 men and women in labor's ranks have syphilis—now!!
- ▶ Because of the nature of syphilis at least 50% of these people do not know they are infected.
- ▶ Syphilis can take years from your productive life.
- ▶ Syphilis can cause accidents, destroy men and machinery, spread to others.
- ▶ Actually syphilis is our most vicious saboteur.

★ Issued by the Metal Trades Council in cooperation with the Bethlehem Steel Company, California Social Hygiene Association, and the San Francisco Department of Public Health.

PLATE 3

MAKE OUR MEN AS FIT AS OUR MACHINES

- ★ A blood test will find syphilis.
- ★ Proper treatment will cure syphilis.
- ★ Treatment will prevent blindness, insanity, and death from syphilis.
- ★ Treatment quickly renders the patient noninfectious, protects your families.
- ★ Know for sure, get a blood test NOW!
- ★ Free diagnosis is available for everyone regardless of their ability to pay at the City Clinic, 33 Hunt St., (off Third Street, between Mission and Howard).

★ Issued by the Metal Trades Council in cooperation with the Bethlehem Steel Company, California Social Hygiene Association, and the San Francisco Department of Public Health.

the "throw-aways" were attached to the time cards, they were printed on a slip of paper slightly longer than the time card used and were distributed by the time clerk in the card holders. Wherever the industry had a house organ, articles and news stories were prepared and run therein.

PLATE 4

Know For Sure!!

FREE blood tests for syphilis will be given by the San Francisco Department of Public Health in the waiting room of the main shipyard hospital.

** Tues. Apr. 13, 3:00 p.m. to 4:30 p.m.
Wed. " 14, " "
Fri. " 16, " "
Tues. " 20, " "
Wed. " 21, " "
Fri. " 23, " "

** The examinations are entirely voluntary and may be taken before or after you start to work on your shift.

** The examinations are painless and only take a few seconds.

** The results of the examinations will be kept strictly confidential.

** Your labor union and the Bethlehem Steel Company will NOT be notified as to the results of the examinations.

** Every American citizen can realize the importance of these examinations whether or not he is suspicious of infection. Over half of the people who have syphilis do not know they have it.

** WE CAN WIPE OUT SYPHILIS BY FINDING AND TREATING EVERY CASE.

Let's do something about it now!!

** Further examination is available free of charge at the S. F. City Clinic, 33 Hunt Street, (off Third Street, between Mission and Howard).

★ Issued by the Metal Trades Council in cooperation with the Bethlehem Steel Company, California Social Hygiene Association, and the San Francisco Department of Public Health.

In the majority of instances the assistance of the San Francisco Tuberculosis Association was secured in performing fluoroscopic or chest X-ray examinations for tuberculosis in conjunction with the blood-testing program in order to give these surveys a dual appeal and to do a better job of public health. Wherever this combined service was offered, it was found that a higher percentage of employees availed themselves of the survey.

A flow of approximately 50 persons per hour was set for these examinations and the plant was divided into its natural shop areas. For example, in a machine shop, the lathe crew would be taken, then the planers, the grinders, the assemblers, etc. Each would be taken as a unit so that esprit de corps would give a higher percentage of response. The personnel manager and shop foremen were requested to route the men to the survey at an approximate rate of 8 every 10 minutes. In the majority of instances this procedure represented the first contact many workers had had with the health department, and every effort was made by its employees, from the registration clerk to the physician securing the serologic specimen, to approach the patients with a friendly and enthusiastic attitude.

These serologic surveys were usually conducted in first aid rooms of the plant, but where these were unavailable, the survey facilities were established in plant restaurants, storerooms, or wherever a central location could be found. It was important to find central locations in order to reduce loss of employee time to a minimum.

Those who had serologic examinations were advised by a printed notice (plate 5) that they would be notified only if their blood tests were found to be positive or questionably positive, and that they could expect to receive this notification within 1 month of the examination. The employees were further advised that if they received no report within 1 month they could assume that their examination had been negative.

These voluntary surveys, done in a variety of industries throughout the city,

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PLATE 5

LABOR LEADS THE WAY TO BETTER HEALTH

The example you have set by volunteering to take these examinations, which are available to everyone free of charge at the City and County of San Francisco Department of Public Health, will lead to the discovery of many people who are unaware they are infected with either syphilis or tuberculosis. The resulting treatment, if necessary, can save their lives and also prevent the spread of these diseases to others.

THE RESULTS OF THESE EXAMINATIONS WILL BE KEPT STRICTLY CONFIDENTIAL BY THE HEALTH DEPARTMENT—NEITHER YOUR UNION NOR YOUR EMPLOYER WILL BE NOTIFIED REGARDING THE RESULTS.

If the examinations performed indicate the possibility of infection, or the necessity of reexamination, **you will be notified by mail within 30 days.**

If within 30 days you do not receive a letter you will know that our findings were negative, giving a reasonable indication that you were not infected with syphilis or tuberculosis at the time the tests were taken.

It should be remembered that one blood test cannot be considered an absolute diagnostic procedure for syphilis, nor is one negative chest X-Ray a complete diagnosis for tuberculosis. The findings of a complete medical examination are the only sure checks on these diseases.

Know For Sure–See Your Doctor at Least Once Each Year!!!

These examinations have been conducted by the City and County of San Francisco Department of Public Health in cooperation with the San Francisco Tuberculosis Association, Industrial Medical Section of the Port Surgeon's Office, S. F. Port of Embarkation, I. L. W. U. Local 10, Northern California Union Health Committee, and the California Social Hygiene Association.

showed an employee participation average of 92 percent. The entire educational, blood-testing, and roentgenologic program was carried on with an average man-hour loss of 6 minutes per employee. In every plant where the surveys were conducted, management indicated that the morale of its employees had been greatly increased because it had shown interest in their health and welfare by allowing all surveys to be done on company time with no pay loss to the employee. In some cases the cooperation between labor and management was so great that the labor unions paid for the printing of the educational leaflets.

Recently many of our serologic surveys have been conducted on a preemployment basis. The largest example of this is a war plant in San Francisco (table 1). As a result of the preemployment serologic survey in the war plant alone, 29,419 persons were examined and 3,408 (11.6 percent) were found to have a positive or doubtful serologic reaction.

TABLE 1.—*U. S. Naval Drydocks, Hunters Point. Preemployment serologic survey. Progress report Nov. 1, 1943, to June 16, 1945*

	Total	Positive and doubtful	Percentage
White			
Male	19,166	1,238	6.5
Female	3,966	179	4.5
Total	23,132	1,417	6.1
Negro			
Male	4,838	1,542	31.9
Female	1,449	449	31.0
Total	6,287	1.991	31.7
Grand total	29.419	3,408	11.6

The employees found to have a positive serologic reaction were notified by written communication, addressed to their homes, to report to the San Francisco City Clinic. This letter, mailed in a plain envelope, was written so that its contents would not be suspected by anyone who had not taken the examination. Those patients reporting to the clinic were given further serologic, physical, and spinal fluid examinations. Upon the conclusion of a definite positive diagnosis, the patients were interviewed by a social service worker. Those who could afford it were referred for private treatment, and those who were unable to pay were placed under treatment at the San Francisco City Clinic or at another free or part pay clinic. Private physicians and part pay clinics were notified of the complete diagnosis, and, if indicated, a treatment plan was recommended.

For employees in occupations where the method of work does not afford necessary plant facilities, still another method of performing serologic surveys was developed. In some of these situations the labor union established in its bylaws a requirement that all new members must have a serologic examination. Under this plan the applicant for union membership is referred to the San Francisco City Clinic for the examination. Here, again, the applicant is advised that he will be notified within a period of 1 month if his examination is found to be positive.

The preemployment examination by management has the advantage of minimizing the number of public health personnel used in the serologic survey work. The epidemiologic follow-up of the persons with positive serologic examinations who fail to respond to a written communication alone is difficult to achieve. Under the plan by which the labor union requires its members to have an examination, arrangements have been made whereby the labor union is notified of those persons who do not complete their examinations. The union then requires the member to report for further examination, failure to do so resulting in loss of membership and, consequently, in loss of employment.

Table 2 shows the results of such serologic tests obtained in a premembership survey of a labor union. It is of interest to note that 759 (29 percent) of the total 2,584 premembership serologic tests given were found to be positive. However, of these, 318 (42 percent) failed to return for further examination, the majority of which had terminated their membership with the union. Of the 441

(58 percent) persons who returned for further examination, 243 (55 percent) were diagnosed as having syphilis and 25 (6 percent) were diagnosed as not having syphilis. The remaining 173 (39 percent) were grouped under inconclusive results, and include those who were under treatment or transferred to private physicians, those where the results of the repeat serologic test conflicted with the first test, and those with a history of previous treatment whose final diagnosis awaits further information from their former treatment agencies.

The more recent concept of the function of a health department venereal disease clinic holds that the clinic should act primarily as a diagnostic center and that treatment of the noninfectious patient be delegated whenever possible to a private physician or other nonofficial treatment agencies. Such serologic surveys as have been described above offer a splendid opportunity for the clinic to operate in such a capacity. The survey provides a large intake volume and the clinic performs complete diagnosis of the patient, thus facilitating the treatment of the patient by private physicians or other treatment agencies.

With the assistance of the health department, the local social hygiene association has recently augmented the venereal disease educational program by the distribution of pamphlets through management irrespective of whether a serologic survey is planned. The pamphlets have been distributed with the pay checks and in some instances placed in rest rooms operated by management.

In arranging for this distribution, the representative of the social hygiene association and the health department contacts the president, the general manager, or the industrial relations manager of each industry, and explains the nature, purposes, and operation of the venereal disease control program. This creates an awareness in industry of at least one aspect of public health, and this plan has resulted in a changing attitude toward the problem and employability of the syphilis patient.

Management has been made to recognize that the syphilis patient under treatment is noninfectious and is an industrial hazard only in the case of cardiovascular syphilis or neurosyphilis. Management has been encouraged to discontinue the policy of discharging those employees

TABLE 2.—*Results of serologic tests obtained in a premembership survey of a labor union Mar. 26 to Aug. 6, 1945*

<table>
<tr><th></th><th>Total</th><th colspan="2">Result of test negative</th><th colspan="2">Result of test positive</th></tr>
<tr><td>Number given premembership serologic test
Percent</td><td>2,548
100.0</td><td colspan="2">1,825
71.0</td><td colspan="2">759
29.0</td></tr>
<tr><th></th><th>Total</th><th colspan="2">Not returned for follow-up</th><th colspan="2">Returned for follow-up</th></tr>
<tr><td>Number with result of serologic test positive
Percent</td><td>759
100.0</td><td colspan="2">318
42.0</td><td colspan="2">441
58.0</td></tr>
<tr><th></th><th>Total</th><th>Reexamined and diagnosed positive</th><th colspan="2">Reexamined and diagnosed negative</th><th>Inconclusive results[1]</th></tr>
<tr><td>Number with a positive test returning for follow-up
Percent</td><td>441
100.0</td><td>243
55.0</td><td colspan="2">25
6.0</td><td>173
39.0</td></tr>
</table>

[1] Inconclusive results include those cases who were under treatment by a private physician or transferred to a private physician or other clinic those cases where the results of the repeat serologic test conflicted with the first test, and those cases with a history of previous treatment and in which further information was needed.

known to have syphilis, and to accept the health department as an agent to determine in what capacity such persons should be employed (2).

These contacts with numerous industrialists, who are essentially the large taxpayers of the community, have awakened in them an awareness of the importance of public health service to industry, and as a result industry is now showing a willingness to support necessary public health activities.

CONCLUSION

In conclusion, it is our experience that a continuous public venereal disease educational program is more successful than sporadic effort. The sporadic program tends to create high enthusiasm, followed by disinterest, whereas the continued program creates a rising level of knowledge. Such a concept, it seems, is in line with accepted promotional theories which hold that repetition over a long period of time is productive of the best results.

We believe that this program was operated in conformance to 5 conditions that are considered essential to learning. They are:

1. Stimulation of interest in the program.
2. Use of natural environment.
3. Development of confidence in those who present the program.
4. Dissemination of information in an understandable language.
5. Direction of knowledge received into positive action.

We are of the opinion that this industrial program has demonstrated that the nonofficial agency can effectively cooperate with the health department in community organization. In fact, this cooperation can be of paramount importance to the success of such a program.

The program has helped in the establishment of the health department as a mediator between labor and management in industrial health matters. Our experience has shown that it is vital to have such an educational program conducted principally by lay personnel, namely, a health educator, in order that the program may be presented in terms that are easily comprehensible. Frequently presentations by members of the medical profession are likely to be too technical for understanding by the lay public.

SUMMARY

1. The industrial program was based on securing the confidence of labor and management, directing that confidence into positive action, and establishing the health department as an unbiased mediator in industrial health problems.
2. The educational objectives were to establish among industrial workers a consciousness of public health services, especially concerning venereal disease control.
3. An appreciation of public health services was fostered among industrial leaders by personal contact.
4. The use of the nonofficial agency was of great value to the progress of the program.
5. Statistical and community results demonstrate the merits of the program.
6. We believe a program creating public awareness of the health, welfare, and moral aspects of venereal disease control—intelligently coordinated, marshaling the various fields of medical and social sciences, adequately supported by public funds—should achieve a continuous reduction of venereal disease until a relatively irreducible incidence is reached.

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Regarding the Unusual Effect of Penicillin Therapy Upon the Uterus

Mortimer D. Speiser, M. D., and Evan W. Thomas, M. D.

It has been reported that treatment with penicillin has caused some pregnant women to experience uterine contractions which in a few cases resulted in abortion (*1*). In others an alteration in menstruation has been noted while under penicillin therapy (*1, 2*). Leavitt (*1*) speculated that this action may be the result of penicillin contaminants which might be comparable to the effect of ergot, a substance obtained from another type of mold. This speculation seems improbable because no known single drug without an endocrine effect is capable of producing uterine contractions (upon the pregnant or nonpregnant uterus) as well as causing intermenstrual bleeding. Nevertheless, since clinicians (*1, 2*) have reported both abortions and intermenstrual bleeding in association with penicillin therapy we have carefully reviewed the records of 156 prenatal patients treated with penicillin in the Rapid Treatment Center at Bellevue Hospital. These patients received penicillin in amounts varying from 600,000 Oxford units to 2,400,000 Oxford units.

There were 5 cases who showed some aberration from the usual course at a variable period of time after penicillin treatment but it is felt that this antibiotic was not responsible. One patient aborted 2 to 3 weeks after discharge when she was about 8 weeks' pregnant. A second patient delivered a 28 weeks' macerated fetus, probably the result of a syphilitic infection. Delivery occurred 4 weeks after treatment. A third patient noted vaginal bleeding about 5 weeks after treatment when she was about 34 weeks' pregnant. The bleeding stopped and the patient continued to term uneventfully. A fourth patient delivered a premature child of 36 weeks' gestation 4 weeks after treatment. A fifth patient delivered a premature child after 34 weeks' gestation and the mother at this time showed evidences of toxemia of pregnancy. She had received penicillin treatment 20 weeks previously. In none of these instances could a possible relationship between penicillin therapy and the alteration in the course of the pregnancy be suspected.

There were 3 patients who delivered during the course of penicillin therapy. Two of these were at term and in one instance a bloody discharge was noted just prior to the onset of therapy. The third patient in this group delivered during treatment after a 30 weeks' gestation. She subsequently aborted after a 20 weeks' gestation and following this she developed infectious syphilitic lesions either the result of a relapse or reinfection. Obviously only in this last case can there be any question regarding the possible effects of penicillin treatment upon the pregnant uterus and certainly here it is highly doubtful.

In spite of the fact that it is improbable that the same agent (nonendocrine) could produce contractions of the uterus and also cause bleeding from the nonpregnant uterus, we have investigated the episodes of uterine bleeding occurring in nonpregnant women while under penicillin therapy. We have given penicillin to over 1,300 women without ever noting any menstrual abnormality which we attributed to the effects of such therapy. Since this was called to our attention we have accurately studied 100 patients under treatment for early syphilis with penicillin and in only one instance was any alteration from the usual cycle found. In this patient bleeding recurred 6 days after a previous normal period. As there

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From the Department of Obstetrics and Gynecology and the Department of Dermatology and Syphilology, New York University College of Medicine and Third Surgical and Medical Divisions, New York University, Bellevue Hospital.

could be no question as to the reliability of the published reports, perhaps some asosciated pathologic process may have accounted for such episodes of intermenstrual bleeding, namely, an associated cervical erosion, endometritis, salpingitis, ovarian cysts, or uterine neoplasms.

REFERENCES

1. LEAVITT, H. M.: Clinical action of penicillin on the uterus. J. Ven. Dis. Inform., 26: 150–153, July 1945.
2. BULLETIN OF THE RAPID TREATMENT CENTERS, U. S. PUBLIC HEALTH SERVICE, School for Public Health, Ann Arbor, Mich., 1: 28, No. 2; 1: 21, No. 3; 3: 13, No. 5.

CURRENT LITERATURE

Note: Abstracts of any article listed below are available on request. In addition, abstracts of all articles concerned with venereal diseases or related subjects which have been published in the better known journals both here and abroad during the last 20 years are in the files. These are open to workers in the field. An asterisk (*) before a title indicates that the article is abstracted below.

AM. J. SYPH., GONOR. & VEN. DIS., ST. LOUIS

The problem of infection of animal mucosae with Neisseria gonorrhoeae. I. Modification of host resistance. Justina H. Hill, Virginia Huffer and Ellen Nell. 29: 281–302, May 1945.

False positive serologic reactions for syphilis with special reference to those due to smallpox vaccinations (vaccinia). Charles R. Rein and Elizabeth S. Elsberg. 29: 303–312, May 1945.

Penicillin therapy of sulfonamide-resistant gonococcic infections and associated complications in the male: A schedule of treatment for ambulatory patients. Alfred Cohn and Borris A. Kornblith. 29: 334–340, May 1945.

A case of yaws in a white American soldier. Lawrence Katzenstein. 29: 340–344, May 1945.

Time-dose relationships of penicillin therapy. III. Regimens used in early syphilis. Walsh McDermott, Maria Benoit and Rebeckah DuBois. 29: 345–352, May 1945.

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ARCH. DERMAT. & SYPH., CHICAGO

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Penicillin therapy for syphilis. C. R. Wise and D. M. Pillsbury. (Suppl.). 32: 214–217, July 1944.

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Difficulties in the successful treatment of the venereal disease patient. David Erskine. 21: 47–60, June 1945.

*Podophyllin treatment of genital warts. Annotations. H. Haber. 21: 63–64, June 1945.

A rapid microscopical method for the serodiagnosis of syphilis. M. Seiler. 21: 82–84, June 1945.

Podophyllin treatment of genital warts.—The author presents a routine treatment employing podophyllin (5 percent) in tannic acid for the treatment of condylomata acuminata.

The method of treatment found to give the best results follows. A preliminary treatment, which consisted of frequent bathing with warm eusol or saline lotion, was carried out usually for 1 to 2 days in all cases with a preexisting balanitis. Before the application of 5 percent podophyllin in tannic acid to the individual warts, the normal parts of the glans and prepuce were protected with a thin layer of zinc ointment. Eight hours later the parts were cleansed with eusol lotion and the same routine was repeated. All cases had at least 2 applications of 5 percent podophyllin in tannic acid (extensive lesions requiring sometimes as many as 8) but, after the second, the routine treatment consisted of eusol bathing followed by the application of pure tannic acid powder. When more than 2 applications of podophyllin were necessary, 24 or 48 hours were always allowed to elapse.

Thirty-five cases were treated successfully, the average duration of treatment being 4 to 5 days, the shortest 8 hours and the longest 16 days. Acute urethritis, gonococcal or nonspecific, was no contraindication to treatment. Admission to hospital is necessary only when the growths are extensive.

A brief review of earlier methods of treatment is given.

BRIT. M. J., LONDON

*Local penicillin therapy in ophthalmia neonatorum. Arnold Sorsby. No. 4408: 903–906, June 30, 1945.

False positive tests for syphilis in malaria. No. 4418: 327, Sept. 8, 1945.

Syphilitic reinfection after penicillin therapy. K. B. Wood and G. C. Cochrane. No. 4418: 333, Sept. 8, 1945.

Trichomonas vaginalis infection in the male. F. L. Lydon. No. 4420: 384–385, Sept. 22, 1945.

Local penicillin therapy in ophthalmia neonatorum.—To a study previously reported, (Sorsby and Hoffa, 1945) in which local therapy by penicillin in a concentration of 2,500 units per cubic centimeter proved effective in 21 out of 22 cases of ophthalmia neonatorum, Sorsby adds a further series of 38 cases with 2 cases failing to respond.

In the earlier study of 47 cases of ophthalmia neonatorum it was shown that consistent results could be obtained when drops in a concentration of not less than 2,500 units per cubic centimeter were used; of 22 cases so treated, 21 recovered, against only 3 out of 5, 4 out of 7, and 6 out of 10 treated with penicillin in concentrations of 500, 1,000, and 1,500 units, respectively. The gratifying results obtained with penicillin in adequate concentration had been achieved by instilling 1 drop of the solution at half-hour intervals for 3 hours, then hourly for 24 hours, and 2 hours subsequently. None of these 21 successfully treated cases took longer than 100 hours to show a clinical cure, and in 6 cases, clinical cure was obtained within 3 to 24 hours. It was indicated that all the common causal organisms of ophthalmia neonatorum, including the virus of inclusion blennorrhea, appeared to respond to penicillin, though perhaps to varying degrees, diptheroid bacilli probably being the most resistant.

The 38 new cases presented were also treated with drops of penicillin in a concentration of 2,500 units per cubic centimeter, but the frequency of instillation differed. Thirteen cases were treated at intervals of 1 hour for 6 hours, then 2 hours for 24 hours, and subsequently at 3-hour intervals. Twenty-five cases were treated initially at intervals of 5 minutes, then of half an hour, and subsequently hourly, followed by 2-hour intervals.

Two out of the 38 cases reported failed to respond. The results of this study were better than those obtained by the instillation of penicillin at half-hour intervals (as in the 22 cases reported previously) or at hourly intervals (as in 13 cases in the present series). The 25 cases treated intensively included the 2 cases that showed no response and 5 cases that relapsed after initial clinical cure; 4 of these 5 responded well to a second course of penicillin. Of the 18 cases that responded initially to treatment, 13 showed clinical cure within 12 hours, and a further 4 within 12 to 24 hours.

In conclusion, the author observed that the severity of the clinical condition did not appear to affect the duration of treatment. Penicillin is effective against all the common causal organisms of ophthalmia neonatorum, including the presumed virus of inclusion blennorrhea. Local penicillin therapy is likely to replace general sulfonamide treatment as the method of choice in ophthalmia neonatorum.

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- The role of insufficient laboratory study and inadequate treatment in the development of general paresis. Mendel B. Zimbler. 17 : 93–97, May 1945.
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- Oral penicillin. A review of the literature and preliminary report. John W. Howard and Elvyn G. Scott. 17 : 171–173, Sept. 1945.

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- Neurological clinical pathological conference of the Cincinnati General Hospital. Charles D. Aring. 6 : 256–260, Aug. 1945.

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- The pathology of stationary general paralysis following treatment. E. Stengel. 52 : 206–212, June 1945.

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- Trend of syphilis cases in Europe 1936–44, 1945. 1 : 603, 630, Aug. 31, 1945.
- *Manila—Tuberculosis, syphilis. 1 : 631–633, Sept. 15, 1945.

Manila — Tuberculosis, syphilis.— Among the 28 infectious diseases covered by the weekly reports for the city of Manila, syphilis, ranking second only to tuberculosis, stands out as a major problem. The heavy increase noted was greater than the extreme prevalence of venereal diseases in the Far East ports before the war.

Although comparable prewar figures are not available, 2,045 syphilis cases were reported in 10 weeks. However, in Copenhagen, where case reporting is notably good and where incidence had quintupled, 1,283 cases were reported in 1943 in a much larger population. The Manila incidence for a year, based on prewar population, would be 17.4 per 1,000 inhabitants. The number of cases increased from 885 during the first 5 weeks to 1,160 during the next 5-week period.

The prevalence of gonorrhea is shown in 1,766 cases reported in 10 weeks, giving an incidence of 9,183 cases, or 14.9 per 1,000 population. However, some reduction has been reported lately.

In 7 weeks, 341 cases of chancroid were reported. Lymphogranuloma venereum, not unusual in French Indo-China, was infrequent, with only 2 cases being reported.

At this rate, there would be over 22,000 reported cases of venereal disease in a year among the civilian population of Manila, and reporting, especially of gonorrhea, certainly cannot be complete.

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- Preparation of colloidal gold. Orin C. Western. 18 : 37–41, Oct. 1945.
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Two years of cooperation in military venereal disease control. Earle H. Harris and Robert H. Abrahamson. 97: 184–190, Sept. 1945.

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OHIO STATE M. J., COLUMBUS

Acute necrotizing angitis due to hypersensitivity following sulfonamide therapy. Robert T. Thompson and Pearl Zeek. 41: 824–825, Sept. 1945.

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State VD center chosen for study. News Item. 23: 1, Aug. 29, 1945.

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*Blood levels and urinary excretion in peanut oil, beeswax, and penicillin mixture. Donald W. Atcheson and Donald T. Edmeades. 102: 199–200, Aug. 24, 1945.

The measurement of blood oxygen in malaria with the use of the oximeter. Yan Tim Wong. 102: 278–279, Sept. 14, 1945.

Control and evaluation of blood serum assays for penicillin. Velma L. Chandler, Clifford W. Price and William A. Randall. 102: 355–356, Oct. 5, 1945.

Blood levels and urinary excretion in peanut oil, beeswax, and penicillin mixture.—Atcheson and Edmeades in a study of 23 patients confirmed the fact that penicillin in combination with peanut oil and beeswax was detectable in the blood stream for longer periods of time following its intramuscular injection than when water or saline suspension was used, and found in addition that there was even more prolonged presence and concentration of penicillin in the urine than has previously been recorded.

The authors' technic follows. The material used was a mixture of peanut oil and 4 percent white beeswax containing 100,000 units of calcium penicillin per cubic centimeter. Urine and blood were assayed by the serial dilution "turbidimetric" method of Dawson and Hobby. The number of Oxford units was determined by comparing bacterial inhibition of serial dilutions of the fluid to be tested and sets of penicillin solutions of known potency determined by assay against a reference standard of penicillin calcium. The bacteria used were the Oxford strain of hemolytic Staphylococcus aureus. This is not the method best suited for the determination of minute amounts of penicillin, as this strain is inhibited by 0.1 units per cubic centimeter. However, the authors found it to be rapid and practical, giving easily reproducible results.

The drug was administered intramuscularly in a single dose of 200,000 units. Blood and urine specimens were assayed at intervals of 2 hours, through to 24 hours, then from 24 to 36 hours, and 36 to 48 hours, and interval and total excretion values were calculated. A total of 23 patients was treated. The values are shown representing the average amounts of penicillin found for each interval. The minimum and maximum amounts are also given.

Penicillin was detected in significant amounts in the blood for an average of over 5 hours. Since all reports thus far agree that the water or saline solutions of penicillin are excreted in 3 to 4 hours, this is a definite prolongation. Actually, the degree of prolongation may be greater as the assay methods used by the above investigators gave values as low as 0.01

unit per cubic centimeter, whereas the method in this report had a minimum reading of 0.1 unit per cubic centimeter.

The rate of excretion dropped rather rapidly in the first 6 to 8 hours and then remained fairly constant for 8 to 16 hours despite the low or absent blood levels. The unit excretion per interval in time was for the most part independent of the urinary volume. The total amount of penicillin excreted was relatively constant around 68,000 units, which represents 34 percent of the original dose given. This rather low total excretion when compared to values of 50 to 60 percent excretion after injection of penicillin in water or saline can be explained by its destruction in the body due to its heat lability or to some other factor in which the time element plays a part.

The prolonged and concentrated presence of penicillin in the urine, however, does suggest the possibility of penicillin being clinically available in the body long after our present concepts have led us to believe. The concentration varied from 100 to 600 times. This may prove to be of clinical significance and of value in studying renal physiology.

U. S. NAV. M. BULL., WASHINGTON

*Simulating serum-sickness reaction to penicillin. William E. Sullens, Jr. 45: 752–754, Oct. 1945.

*Venereal disease contact investigation in the U. S. Navy, third quarter 1944. Efficiency of Navy contact–education interviews and results of civilian health department investigation. Walter H. Schwartz, Howard W. Ennes and Margaret F. Allen. 45: 798–809, Oct. 1945.

Simulating serum-sickness reaction to penicillin.—The author presents the case of a white seaman in whom urticaria, accompanied by general symptoms, appeared following a second course of penicilin treatment for gonorrhea.

After a diagnosis of gonorrheal urethritis, and after the failure of a 3-day sulfathiazole treatment, a course of penicillin therapy was instituted. A total of 100,000 O. u. of calcium penicillin was given in 5 intramuscular injections at 3-hour intervals. Symptoms cleared the following day, but 23 days later, following a recurrence of dysuria and discharge, a second course of 100,000 O. u. of calcium penicillin was given. The patient became apparently well, but 6 days later large urticarial welts appeared on the abdomen, back, and hips, and later on the face and extremities. Local treatment was used on these areas.

Subsequent skin tests with penicillin produced mild urticaria above the site of the injection, but it was not determined whether the reaction was due to penicillin or to an impurity in the preparation.

Venereal disease contact investigation in the U. S. Navy, third quarter 1944. Efficiency of Navy contact-education interviews and results of civilian health department investigation.—This article evaluates the importance of "contact investigation". in the joint venereal disease control effort of the armed services and civilian authorities. Included in the term "contact investigation" are the contact-education interview, in which the patient's diagnosis and treatment are clarified and contact descriptions are obtained; contact reporting, as described on Form Navmed 171; contact location, an activity of civilian field workers using this Form 171 and contact disposition, or the medical examination and treatment of contacts located.

Contact investigation tends to bring a larger proportion of early, infectious cases under treatment than do blood test dragnets or premarital and prenatal examinations. It also focuses attention on the locations of encounter and exposure, a valuable guide in social protection and law enforcement activities.

This report presents a general analysis of the first 3 months' experience with Form Navmed 171, with data as to distribution of contacts, interviewing efficiency, overseas reporting, and characteristics of contacts, such as fees paid and type of venereal disease. During the third quarter of 1944, Navy contact investigation brought to light some 2,400 heretofore unknown cases of venereal disease, which were subsequently removed as further menaces to the health of Navy, Army, and civilian personnel.

Cases of Syphilis and Gonorrhea Reported for the First Time in States, Territories and Possessions for the First 9 Months of 1945

Area	Syphilis										Gonorrhea	
	Total [1]		Primary and secondary		Early latent		Late and late latent		Congenital			
	Sept.	Jan.-Sept.	Sept.	Jan.-Sept.	Sept.	Jan.-Sept.	Sept.	Jan.-Sept.	Sept.	Jan.-Sept.	Sept.	Jan.-Sept.
Alabama	1,179	8,483	210	1,271	302	2,040	337	2,050	36	254	1,146	7,206
Arizona	120	1,130	39	297	42	323	32	437	7	72	134	886
Arkansas	1,033	12,166	221	3,526	366	4,277	346	3,548	49	470	560	5,788
California	2,082	23,245	416	4,005	544	6,028	1,025	11,509	60	604	2,393	20,390
Colorado	149	1,771	59	499	32	429	50	776	8	67	173	1,677
Connecticut	201	1,815	11	202	30	483	139	864	0	43	90	1,046
Delaware	17	276	9	79	5	92	3	70	0	21	11	117
District Columbia	291	2,741	63	612	121	892	90	1,065	5	78	455	4,640
Florida	1,167	12,713	149	1,779	583	5,242	340	4,338	32	377	1,046	10,378
Georgia	961	8,386	274	2,229	442	3,353	209	2,503	36	288	722	7,025
Idaho	90	556	7	99	41	146	33	244	1	24	56	428
Illinois	1,596	16,228	380	2,870	362	3,910	818	8,992	36	456	2,336	17,973
Indiana	389	4,578	100	884	35	527	115	1,554	11	118	245	1,889
Iowa	132	1,000	27	227	51	298	49	373	2	41	177	1,646
Kansas	149	1,717	34	347	31	366	80	928	4	76	238	1,638
Kentucky	383	3,646	168	1,197	81	912	93	1,044	13	177	432	4,397
Louisiana	1,236	8,426	309	1,895	440	2,404	232	1,995	61	474	812	7,279
Maine	60	503	30	141	11	87	18	214	1	28	87	746
Maryland	640	8,601	137	1,327	159	1,907	145	2,278	5	160	372	4,097
Massachusetts	261	2,804	56	598	0	0	190	2,056	15	150	336	2,913
Michigan	1,172	12,103	236	2,437	330	3,489	420	4,466	27	270	1,028	8,782
Minnesota	101	958	13	158	21	154	63	570	3	32	210	1,732
Mississippi [4]	817	15,202	205	4,759	325	5,114	245	4,566	42	693	888	21,474
Missouri	193	6,425	67	1,578	54	1,916	50	2,444	4	252	215	5,445
Montana	21	321	6	64	0	28	10	91	0	22	34	235
Nebraska	74	817	21	166	25	227	27	369	1	27	101	915
Nevada	36	314	7	74	0	11	10	119	0	4	39	517
New Hampshire	28	290	5	46	2	38	18	180	3	19	30	264
New Jersey	830	6,808	126	917	263	2,067	405	3,520	29	233	444	3,477
New Mexico	135	1,469	20	278	34	427	74	662	7	102	185	1,166
New York	2,159	22,731	492	4,684	488	5,157	1,104	12,090	63	648	[2] 1,481	[2] 12,468
North Carolina	787	6,061	249	2,105	293	2,230	208	1,410	37	273	1,087	7,085
North Dakota	14	166	2	30	2	28	4	62	0	9	64	408
Ohio [5]	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Oklahoma	452	5,135	78	863	119	1,443	120	1,487	39	242	628	6,841
Oregon	139	1,250	34	325	24	171	62	670	6	44	257	1,820
Pennsylvania	760	7,834	155	1,485	312	3,090	244	2,632	35	365	[3] 236	[3] 1,742
Rhode Island	115	749	29	165	13	64	67	421	1	23	40	308
South Carolina	525	5,320	171	1,744	186	1,613	111	1,474	41	331	639	5,244
South Dakota	25	309	5	65	5	71	12	151	2	18	52	403
Tennessee	981	9,021	249	1,884	392	3,749	309	3,100	28	255	1,565	11,926
Texas	866	10,053	217	2,734	394	4,380	210	2,169	35	445	1,183	12,156
Utah	24	348	9	75	2	87	11	180	2	13	53	437
Vermont	6	110	1	12	2	26	3	48	0	10	44	247
Virginia	603	7,422	202	2,245	223	2,891	156	1,922	19	311	607	5,444
Washington	221	2,572	38	501	68	718	79	1,070	5	65	436	4,000
West Virginia	369	2,838	196	1,341	78	688	67	658	16	95	823	3,999
Wisconsin	229	1,571	51	301	2	17	172	1,239	4	14	137	884
Wyoming	28	297	6	67	9	93	12	90	0	2	25	161
Total United States	23,846	249,279	5,589	55,187	7,344	73,703	8,617	94,698	831	8,795	24,352	221,739
Alaska	6	112	4	31	1	19	1	13	0	1	40	344
Canal Zone	83	693	9	71	23	180	46	391	3	12	57	622
Hawaii	41	363	1	18	8	37	29	277	3	27	31	271
Puerto Rico	561	6,419	74	744	204	2,184	163	1,861	117	1,573	425	5,238
Virgin Islands	5	137	0	32	4	79	1	23	0	3	5	88
Total United States and Possessions	24,542	257.003	5,677	56,083	7,584	76,202	8,857	97,263	954	10,411	24,910	228,302

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[1] Includes "Not stated."
[2] New York City only.
[3] Philadelphia and Pittsburgh only.
[4] Exclusive of private physicians; clinics only.
[5] No report for September.

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The JOURNAL of VENEREAL DISEASE INFORMATION

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FEDERAL SECURITY AGENCY

UNITED STATES PUBLIC HEALTH SERVICE

Thomas Parran, *Surgeon General*

Editor: J. R. HELLER, Jr., *Medical Director*
Chief, Venereal Disease Division

Approved by the Director, Bureau of the Budget, as required by Rule 42, of the Joint Committee

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Editorial

Information has long been sought concerning the effect of syphilis on the life expectancy of the infected individual, and the influence of treatment upon such lower life expectancy. The task has been complicated by the difficulties encountered in finding properly controlled population groups for study. In this issue are reports of two studies in which these difficulties have to some extent been overcome. Heller and P. T. Bruyere found that among male Negroes between 25 and 50 years of age with untreated syphilis the life expectancy was about 20 percent less than among a comparable uninfected population. On the other hand, Smith and M. C. Bruyere found that in a population of the same age, race, and sex who were infected with syphilis but had received some treatment, the life expectancy was reduced only about 10 to 12 percent below that of the general population. (The actual range of reduction in the ages considered was 8 to 15 percent.) Since the amount of treatment received by these individuals is not stated, no estimate can be made as to the amount of treatment necessary to counteract most effectively the influence of syphilis upon life expectancy. Nevertheless, consideration of the two studies clearly indicates that treatment does prolong life.

This is further confirmed by the mortality trends in syphilis presented by Usilton in this issue. Clinically, of course, it is well known that syphilis when allowed to progress to its late stages can cause death. Data compiled from Bureau of the Census tabulations of information contained in death certificates indicate that the frequency with which this has been happening has declined considerably in recent years. It would appear, then, from these three studies that while syphilis undoubtedly shortens the life expectancy of the infected individual, treatment is effective in reducing mortality specifically due to syphilis and in offsetting the general effect of syphilis in reducing life expectancy.

—THE EDITORS.

Special Report [1]

As this issue goes to press some interesting new data on case finding are furnished by Dr. T. F. Abercrombie, Georgia State Director of Public Health, and Dr. Clair A. Henderson, Commissioner of Health for the Savannah-Chatham County, Ga., Health Department. From October 1 through November 15, 1945, the local health department, in cooperation with State and Federal health agencies, private physicians, and various important community groups, attempted a material reduction in the reservoir of infectious syphilis and tuberculosis in Savannah and in Chatham county. The primary case-finding technic used was mass blood testing and X-raying promoted by vigorous public education through the press, radio, films, posters, and so forth. This is being followed up by thorough investigation of contacts.

The preliminary report indicates that about 71,000 individuals reported for and received a serologic test for syphilis during the 45-day period. The "yield" of infectious, previously unknown cases is not yet available to us, but the first screening examination revealed positive results in 12,400 tests, doubtful in 5,850, or approximately 18 and 8 percent, respectively. The total cost of the campaign for finding syphilis and tuberculosis was $76,926.

Obviously, conclusive judgment of the worth of this demonstration must await publication of the full report. However, it is reasonable to compare the Savannah cost of approximately 54 cents for each person tested for syphilis with the $2.12 cost cited by Heller, Usilton, and Clark in the first article in this issue as the average cost of local health departments of that same area (South Atlantic and Gulf States) for each suspect investigated by the traditional person-to-person case-finding methods.

Inducing patients to report for diagnosis voluntarily through public education is now an accepted method of case finding. Its importance has been attested by Pariser (*1*) and by Iskrant and his associates (*2*). An intensive educational program in New Orleans last spring found more cases of gonorrhea in 45 days than would normally have been found in 2 years (*3*). Heller (*4*) and Iskrant (*2*) have presented evidence proving conclusively that epidemiologic methods of finding cases can be improved. Smith and Denison's (*5*) report on the intensive case-finding demonstration in Birmingham, Ala., is that syphilis cases were found in vastly greater numbers by the use of new methods and more intensive application of older technics.

Through studies and demonstrations conducted in cooperation with State and local health departments in various parts of the country, the Public Health Service has learned much about case finding during the past year or so. Further studies and demonstration programs should make available still more knowledge of methods and procedures which will improve this aspect of the control process. State and local health officers who are interested in participating in cooperative demonstrations, or who desire advice on procedures and technics already demonstrated, are invited to communicate with the chief of the Venereal Disease Division, or with the appropriate District Office of the United States Public Health Service.

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[1] From staff members of the Venereal Disease Division, U. S. P. H. S., under the direction of J. R. Heller, Jr., Chief.

A Plan for Revitalizing National Venereal Disease Control

J. R. Heller, Jr., M. D.,[1] Lida J. Usilton, M. A.,[2] and Arch B. Clark [3]

United States Public Health Service

There is evidence to show that the incidence of syphilis among civilians has been lowered in spite of the difficulties inherent in wartime control. To make additional gains, or even to hold those gains already realized by national venereal disease control, there must be an effective redirection of both money and effort in the official control programs of every community in the Nation. This redirection must begin with long-term community planning. It should begin immediately, both because of recent changes in treatment and control methods for syphilis and gonorrhea and because of the increased problem due to the return of several million young men to civilian life.

The need for community planning stems from the fact that annually approximately 6 million dollars, or about 70 percent of Federal grant-in-aid funds, are actually used in the work of city, county, and other local health units. At present, plans on which grants of Federal funds are based cover principally the activities of the various State health departments and do not necessarily reflect the specific needs and programs of the communities where the bulk of the money will be spent.

An effective method is needed for long range yet flexible planning whereby States can allocate control funds to the best advantage for community use. Local planning which takes into account current, anticipated, and unmet needs as revealed by first-hand knowledge of local venereal disease problems and resources and of unit costs for each activity necessary in the control process are desired for a satisfactory basis for making local grants. At present local allotments are determined primarily on past experience, spot surveys, necessarily limited appraisals by the State venereal disease control officer, routine activity reports, and detailed but unrevealing budgets.

Development of community plans can be facilitated by data recently obtained by the District Office of the U. S. Public Health Service in cooperation with State and local health departments. Some of these data are shown in table 1 which gives unit costs of services rendered by local health agencies within the various States comprising the major geographic areas of the United States.

Recently, changes in budgetary procedure have been recommended by the Business Management Committee of the Association of State and Territorial Health Officers. The budgets prepared by the smallest organizational units of State-wide public health systems will be greatly simplified under this new procedure, and it will permit the flexibility in fiscal procedures essential to the financing of such projected planning as we are herein proposing.

The data compiled through the cooperative survey with State and local health departments indicate clearly that under the planning and budgetary systems currently used it is almost impossible, without a protracted time lag, to use funds from State grants-in-aid for the application of new discoveries in control technics. For example, the rapid treatment center program, which is financed primarily by a special Federal appropriation, provides treatment facilities sufficient to care for 23 percent of syphilis patients formerly treated in clinics. Nevertheless, table 2 indicates that of all control funds available, exclusive of money specifically appropriated for rapid treatment centers, 22 percent was still being spent for treatment, mainly of syphilis, at the end of the fiscal year 1945. In contrast, only 4 percent had

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[1] Medical Director, Chief, Venereal Disease Division.

[2] Principal Statistician, Venereal Disease Division.

[3] Sanitarian (R), Venereal Disease Division.

TABLE 1.—*Unit cost of various venereal disease control activities, by areas*

Areas	Cost of treatment per treatment visit	Interview cost per contact named	Cost of investigation per suspect investigated	Cost of investigation per new venereal disease case discovered by investigation	Cost of follow-up per lapsed case returned to treatment	Clinic cost per diagnostic visit	Clinic cost per venereal disease case diagnosed
North Atlantic States	$0.69	$1.79	$3.85	$9.67	$2.24	$1.37	$3.02
North Central States	.58	1.63	1.47	4.60	2.85	.87	5.17
Pacific States	.84	4.96	2.62	10.62	15.03	.67	5.19
South Central States	.57	1.63	1.59	6.05	3.57	.76	3.57
Mountain States	1.10	1.17	2.63	7.71	7.35	1.25	4.34
Southwestern States	.52	1.18	1.08	3.24	2.15	1.10	5.46
Middle Atlantic States	.50	.64	2.12	9.82	2.31	1.04	4.51
South Atlantic and Gulf States	.42	1.45	2.12	10.82	1.40	.72	2.79
United States [1]	.57	1.50	1.91	7.25	2.76	.87	4.42

[1] Does not include Maine, Maryland, New Hampshire, New York, and Vermont.

Source: Clinic cost analysis of a 3 months' survey in 1945. The survey covered 3 months' expenditures during the period Jan. 1–June 30, 1945.

been diverted to support the rapid treatment center program, which at that time had been in full operation for well over a year.

While these proportions may have changed somewhat since the date of the survey, outpatient treatment is still the greatest single item of venereal disease control expenditure. Despite the great emphasis that has been given the importance of increased case finding and diagnostic activities by organizations receiving Federal grants-in-aid, only 9 percent has been spent for diagnosis and 11 percent for suspect investigations. Four percent of the money is still being spent for delinquent case investigation, an activity made relatively unimportant by recent developments in therapy and the creation of the rapid treatment center system.

With more sharply defined methods of control, simplified budgets, and a knowledge of basic unit costs, a State health

TABLE 2.—*Total annual cost of venereal disease program by area, from all sources of funds, exclusive of Federal appropriation for rapid treatment facilities*

Areas	Total funds spent on venereal disease control	Percent distribution by function										
		Total	General administration, operation, and maintenance of building space	Diagnosis	Interviewing	Suspect investigation	Treatment in clinics	Rapid treatment facilities	Delinquent case investigation	Laboratory	Medical, epidemiologic, and control records	Other (educational, training, etc.)
North Atlantic States	$2,245,587	100.0	10.7	6.1	3.2	11.8	20.0	3.9	4.3	21.5	10.0	8.6
North Central States	3,771,588	100.0	13.9	8.4	5.1	7.7	20.9	1.2	4.5	23.7	12.4	2.2
Pacific States	2,048,800	100.0	14.5	6.8	5.5	10.1	25.9	1.5	3.1	15.4	13.8	3.5
South Central States	1,960,027	100.0	12.4	7.1	4.9	14.8	17.1	6.7	2.9	20.2	9.6	4.3
Mountain States	300,477	100.0	8.8	8.2	4.0	10.8	19.6	2.9	2.2	32.4	9.5	2.9
Southwestern States	1,158,069	100.0	12.1	10.8	3.0	6.9	24.8	5.4	1.5	20.3	11.5	3.7
Middle Atlantic States	3,298,347	100.0	12.7	11.1	5.0	13.9	23.8	1.8	4.6	10.6	13.7	2.8
South Atlantic and Gulf States	4,198,244	100.0	15.3	11.6	6.0	9.5	21.7	8.0	2.9	9.6	11.9	3.4
United States [1]	18,981,139	100.0	13.4	9.1	5.0	10.7	21.8	4.0	3.6	16.7	12.0	3.7

[1] Does not include Maryland, Maine, New York, New Hampshire, and Vermont.

Source: Clinic cost analysis of a 3 months' survey in 1945. The survey covered 3 months' expenditures during the period Jan. 1–June 30, 1945.

officer can now assign funds to local health units on a project basis. The suggested plan for developing these local projects is outlined briefly in appendix A.

First of all, each State would provide consultative service to its local health officials as an aid toward the development of adequate programs. This would include advice as to the relative emphasis which should be given the various phases of the program in view of the shifting over-all problem, the discontinuance of outmoded practices, the integration of new discoveries into the framework of the organization, and finally, the utilization of existing resources and personnel to meet these changes.

The State health officer would establish terms and conditions governing the allotment of venereal disease grant funds to local health units. These terms and conditions would outline the type of organization and activity for which allotments would be made and prescribe whatever limitations in the use of these funds the State health officer deems necessary for the proper administration of the program.

With the aid thus provided, and within these limits, each local health unit would develop a program suited to the individual needs of the community it serves. Six months to a year prior to the allotment of funds, the State would require the local unit to submit a venereal disease control project or plan. First, this plan should represent an over-all program; that is, it would describe all services to be rendered and include an estimate of the number of persons to be served. The plan should take into consideration such factors as changes in problem and in population, the adaptation of new technics, the use of newly discovered drugs, and the adaptation of existing facilities to meet changing conditions.

Second, a budget for each part of the program showing the source of all available funds and the amount of grants required should be prepared in support of the plan. (Necessary interbudgetary changes would not require submitting a formal revision to the State.)

It is of course realized that all local health units will not be able or willing to develop immediately or carry out plans comprehensive enough to meet the needs within their particular communities. The State health department would reserve the funds which would have been allocated to these areas had acceptable plans been submitted. This reserve could then be used to meet otherwise unprovided for needs and to take care of emergencies that may arise from time to time. It could also be used to revitalize existing health organizations through demonstrations or assistance which tend to stimulate the local health departments to develop adequate programs before the next fiscal period and to assume responsibility for their continuation.

The plan outlined could be a very valuable aid over and beyond its usefulness as a tool for the allocation of funds to local communities. This would be true not only for State and local health departments, but also for the U. S. Public Health Service, for the Bureau of the Budget, and for Congress. The plan, as it is outlined, would provide current data on the money that would be needed to carry out the whole program. Also, since the plan submitted by each local organizational unit would include estimates of performance and budgets based on these estimates, the actual performance could be evaluated against the functional estimates contained in the plan. Actual performance measured against the expenditure reports would also permit determination of unit costs in the local program. Thus there would at all times be a rough estimate of the unit cost of all services entering into national, State, and local venereal disease control work, with sufficient ranges to allow for differences attributable to geographic factors and to size and composition of populations.

Likewise, with the plan there would be submitted a statement of resources available to the local unit. This, together with the statement of needs, plans, and the funds necessary to do the job, would allow both Federal and State authorities to anticipate the minimum amount of money to be requested from their appropriating bodies. Further, with a basic plan, the budget submitted by local health units takes on greater significance. The performance reports prepared by local units constitute a measure of the adequacy and completeness of local plans, and the effectiveness of expenditures as an instrument of control may be ascertained and weighed against measurable standards.

Throughout the war years new treatment technics and improved organization for case finding have been developed. Rapid treatment has made case holding in most areas unnecessary. The futility of some former control efforts has been demonstrated. New knowledge of the venereal disease control organization of local communities has been gained. More objective bases of financial support of State programs through Federal grants-in-aid have been evolved. The introduction of these new and improved technics into the programs of the smallest organizational unit by utilizing the instrumentalities set forth above will help to revitalize the entire program.

APPENDIX A

PROPOSED APPLICATION AND PLAN FOR LOCAL VENEREAL DISEASE CONTROL PROGRAM (to State Health Officers)

Fiscal year---------- Date of application ----------

Local health department -------------------------- (City or county) (State)

Population served: White---------- Nonwhite-------

Amount of proposed budget:

Local funds----- $------

Federal funds--- $------

Total---------- $------

I. Enumeration of organizational units

Unit	*Percent of activity devoted to VD control*	*Budget No.*
A. Generalized health department	--------	------
B. Health organization with departmentalized services		
1. Central VD control and administration	--------	------
2. Outpatient diagnostic and treatment clinics	--------	------
3. Inpatient treatment facilities	--------	------
4. Laboratory	--------	------
5. Nursing	--------	------
6.		
7.		

II. Services proposed by public agencies (check applicable blocks)

Class of service	Service to be provided to—		
	All	Indigents	Persons of low income and indigents
1. Diagnosis			
2. Outpatient treatment: Emergency			
Continued			
3. Inpatient treatment			
4. Laboratory			
5. Drugs			

III. Organization of diagnostic treatment and epidemiologic services

A. Public diagnostic and treatment facilities

1. Public clinics

a. Number of locations. ------------

b. Available weekly hours of service

(1) Clinic hours ----------

(2) Physician hours ----------

(3) Clinic nurse hours ----------

(4) Clerk hours ----------

2. Physicians' offices

a. No. of physicians authorized to render care to public patients ----------

b. Fee schedules for:

(1) Diagnosis and referral to RTC. $--------

(2) Office treatment for:

Syphilis: Penicillin $--------; Ars. $--------; H. M. $--------

Gonorrhea: Penicillin $--------; Sulpha. $--------

c. Are drugs furnished in addition to payment of fees --------

3. Inpatient services (name and location of available facilities) ------------

B. Epidemiologic

1. Health department personnel engaged in suspect investigation (check)

a. ☐ Generalized nursing staff

b. ☐ Specialized VD workers: ☐ Health officer

☐ Public health nurse

☐ Social worker

☐ Lay investigator

☐ Other (specify)

2. Number of epidemiologic worker hours per week (all classes of investigators) proposed for suspect investigation ----------

3. Collaboration with private physicians

a. Epidemiologic service by health department staff (specify procedures and extent) --

b. Fees for names of contact. Amount of fee $--------

IV. Estimate of diagnostic and treatment activities

A. Approximate number of persons expected to be examined at public expense for venereal infection during year

1. In clinics ----- 2. In physicians' offices ----- 3. In nonprofit hospitals -----

B. Approximate number of persons expected to be treated at public expense for venereal infection during year

To be entered for treatment	Syphilis			Gonorrhea	Other
	P & S	E. L.	Other		
1. By public treatment sources a. For outpatient service					
b. For inpatient service					
2. By private treatment sources a. For outpatient service					
b. For inpatient service					

C. If totals in "B" are greater than reports of the level of activity during the preceding fiscal year, explain measures by which increases in activity are to be accomplished

Untreated Syphilis in the Male Negro

II. Mortality During 12 Years of Observation

J. R. Heller, Jr., M. D.,[1] and P. T. Bruyere, M. D., M. P. H.[2]
United States Public Health Service

This paper is the second of a series of studies of untreated acquired syphilis in the male Negro. It deals particularly with the effect of the disease on the life span of the human host. Subsequently in more detailed analyses of the material attempts will be made to describe and evaluate specific changes brought about by the disease in the infected individual, with particular reference to the cardiovascular system.

The material upon which the study is based consists of records of 410 Negro men with untreated syphilis and a comparable group of 201 uninfected Negro men. In a previous report (*1*) the population under study was described, considerable attention being given to the methods of diagnosis and to the physical and roentgenologic findings in the two groups, syphilitic and control. The individuals were carefully chosen, the decision as to the presence or absence of syphilis being based on history, physical examination, and serologic tests of the blood and spinal fluid. X-ray examinations of the heart were made on all the individuals selected for study, and additional roentgenologic studies were made when indicated. The syphilitic group was chosen first, and the control group was selected in such a way as to have a nearly identical age distribution. All members of both groups were inhabitants of a rural area in Alabama.

The examinations were made and the study population selected during the winter seasons of 1931–32 and 1932–33, the time of year being chosen in order not to interfere with the usual agricultural occupations of the individuals involved. Since that time there has been an annual visit to the region by a physician for the purpose of obtaining specimens of blood for serologic examination, and a second complete examination was made of the majority of the group in 1938–39. In addition, a nurse in the local health department has kept in constant touch with the members of the group. Some of these have left the area from time to time, but most of them return eventually, and the whereabouts of practically every one is known through relatives and friends still living in the region. It is felt that as yet not one individual still living has been completely lost from observation.

An important part of the study has been the performance of autopsies on those who have died. Through the end of 1944, 129 were known to have died. Of these, 93 were examined post mortem. The majority not so examined lived in far outlying areas so that news of their death was not received promptly. In a few cases death occurred while the patient was living outside the area; however, news of the event was obtained from relatives. Since, as has already been pointed out, all of the individuals not reported as dead are either still residing in the area or are heard of, at least occasionally, through relatives and friends, it is reasonably sure that there have been no other deaths than the 129 recorded.

From the foregoing remarks it can be seen that very little error can result from basing mortality rates on the assumption that the entire study group, syphilitic and control, has been under continuous observation from Jan. 1, 1933, to the present time. Because there is occasionally a

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A cooperative study project assisted by annual grants from the Millbank Memorial Fund. Initiated under the direction of Taliaferro Clark, M. D. Clinical examinations by O. C. Wenger, M. D., R. A. Vonderlehr, M. D., J. R. Heller, Jr., M. D., and A. V. Deibert, M. D. Follow-up directed by M. Smith, M. D. Postmortem examinations by J. J. Peters, M. D. Pathologic examinations by R. D. Lillie, M. D. Statistical analysis by L. J. Usilton, M. A., P. T. Bruyere, M. D., M. P. H., and M. C. Bruyere.

[1] Medical Director, Chief, Venereal Disease Division.

[2] Statistician, Venereal Disease Division.

time lag, however, between the occurrence of death and its report, and also because this analysis was commenced before the end of 1945, the study was limited to the events between Jan. 1, 1933, and Dec. 31, 1944, a period of 12 years. The original study group consisted of 410 syphilitics, of whom 101 died during the period mentioned, and 201 controls, of whom 28 died. It will be seen at once that there was a much greater mortality among the syphilitics than among the controls, 24.6 percent as compared with 13.9 percent.

As has already been stated, the control group was selected so as to conform to the syphilitic group with regard to sex and age, so that these factors cannot account for any part of the difference. It is known that some of the control group have acquired syphilis, although the exact number cannot be accurately determined at present, and that about one-fourth of the syphilitic individuals received some treatment for their infection. Most of these, however, received no more than 1 or 2 arsenical injections; only 12 received as many as 10. The exact effect of these circumstances on the relative mortality of the 2 groups is not known. It is evident that infection with syphilis of members of the control group would tend, if anything, to make the mortality of this group more nearly like that of the syphilitic group. The effect of treatment on the mortality of the syphilitic group is open to question. However, the amount of treatment was small and certainly could not have accounted for any appreciable increase in mortality. Therefore, the fact that nearly twice as large a proportion of the syphilitic individuals as of the control group has died is a very striking one.

The foregoing observations led us, as a preliminary step in the analysis of the material, to attempt to measure more exactly the relative mortality of the 2 groups. The most efficient statistical procedure for that purpose, the construction of life tables, was adopted. The results are presented in the table and charts.

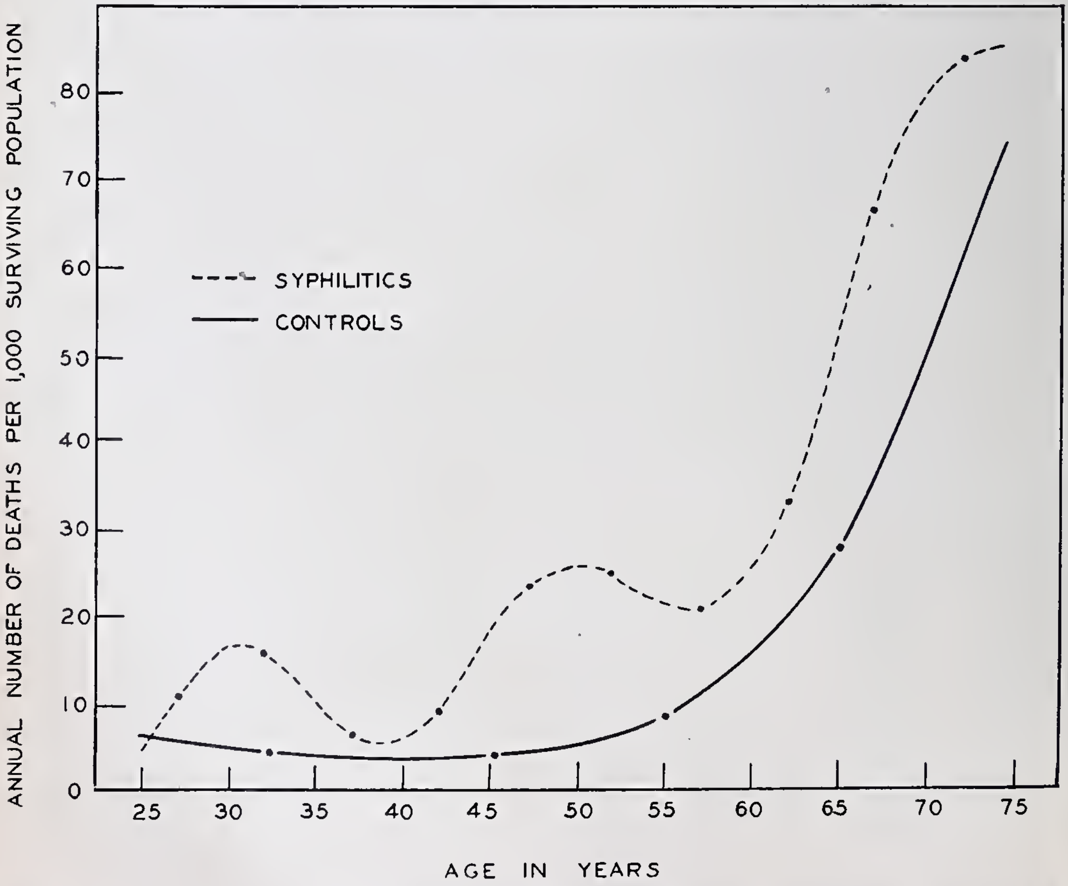
Since the period of the study was 12

Abridged life tables for Negro males aged 25–74 with untreated syphilis and not infected with syphilis, Macon County, Ala., 1933–44

Age period	Syphilitics					Controls				
	Observed population		Theoretical life table population			Observed population		Theoretical life table population		
	Person-years of observation	Number of deaths	Number surviving to beginning of age period out of 1,000 alive at age 25	Number dying in central year of age period per 1,000 alive at beginning of that year	Average number of years of life through age 74 remaining to an individual alive at beginning of age period	Person-years of observation	Number of deaths	Number surviving to beginning of age period out of 1,000 alive at age 25	Number dying in central year of age period per 1,000 alive at beginning of that year	Average number of years of life through age 74 remaining to an individual alive at beginning of period
			l_x	$1000q_x$	$\mathring{e}_x$			l_x	$1000q_x$	$\mathring{e}_x$
25–29	308.25	3	100,000	10.81	34.09	748.50	3	100,000	5.87	42.37
30–34	564.00	9	94,706	16.36	30.83			97,081	4.13	38.58
35–39	616.50	4	87,489	6.06	28.18			95,072	3.33	34.34
40–44	455.00	4	84,455	8.21	24.12	502.50	2	93,483	3.45	29.88
45–49	499.75	12	80,600	24.20	20.13			91,863	4.26	25.37
50–54	588.75	15	71,765	25.35	17.28	612.50	5	89,905	5.91	20.86
55–59	521.25	11	63,285	20.38	14.28			87,228	10.44	16.42
60–64	324.50	11	56,777	33.35	10.63	281.50	8	82,689	19.75	12.17
65–69	192.50	13	47,530	67.14	7.17			74,737	36.83	8.18
70–74	79.75	7	33,694	83.82	4.06			61,856	62.35	4.33

years, from the beginning of 1933 to the end of 1944, each individual who survived into 1945 contributed 12 person-years of observation, at ages depending on his age on Jan. 1, 1933. Likewise those who died contributed varying numbers of person-years of observation at various ages, depending on their ages in 1933 and the date of their deaths. The number of deaths at each age related to the number of person-years of observation at that age yielded a set of age-specific mortality rates which could be determined separately for the syphilitic and the control groups. Because of the relatively small number of individuals, rates could not be computed for single years of age and groupings had to be made. Estimated rates for the individual ages were obtained by a process of interpolation, using third degree polynomials. These were then adjusted, where necessary, so that they would apply to persons exactly at a given birthday rather than halfway between two birthdays, as is the case with the usual age-specific mortality rates computed by relating the number of persons at a given age, say 25 years old (that is between their 25th and 26th birthdays), to the number of living persons of that age. The rates finally resulting from this process are indicated by the curves in chart 1 and those for every fifth year between 25 and 75 are listed in the column q_x in the table. In the charts, the large dots indicate the basic points between which interpolation was made. The table and charts start with age 25 because at the time of the original selection all the men in the study group were 25 or older. Data for ages 75 and up are not shown because the number of person-years of life and the number of deaths occurring beyond that age were so small that the rates were not reliable.

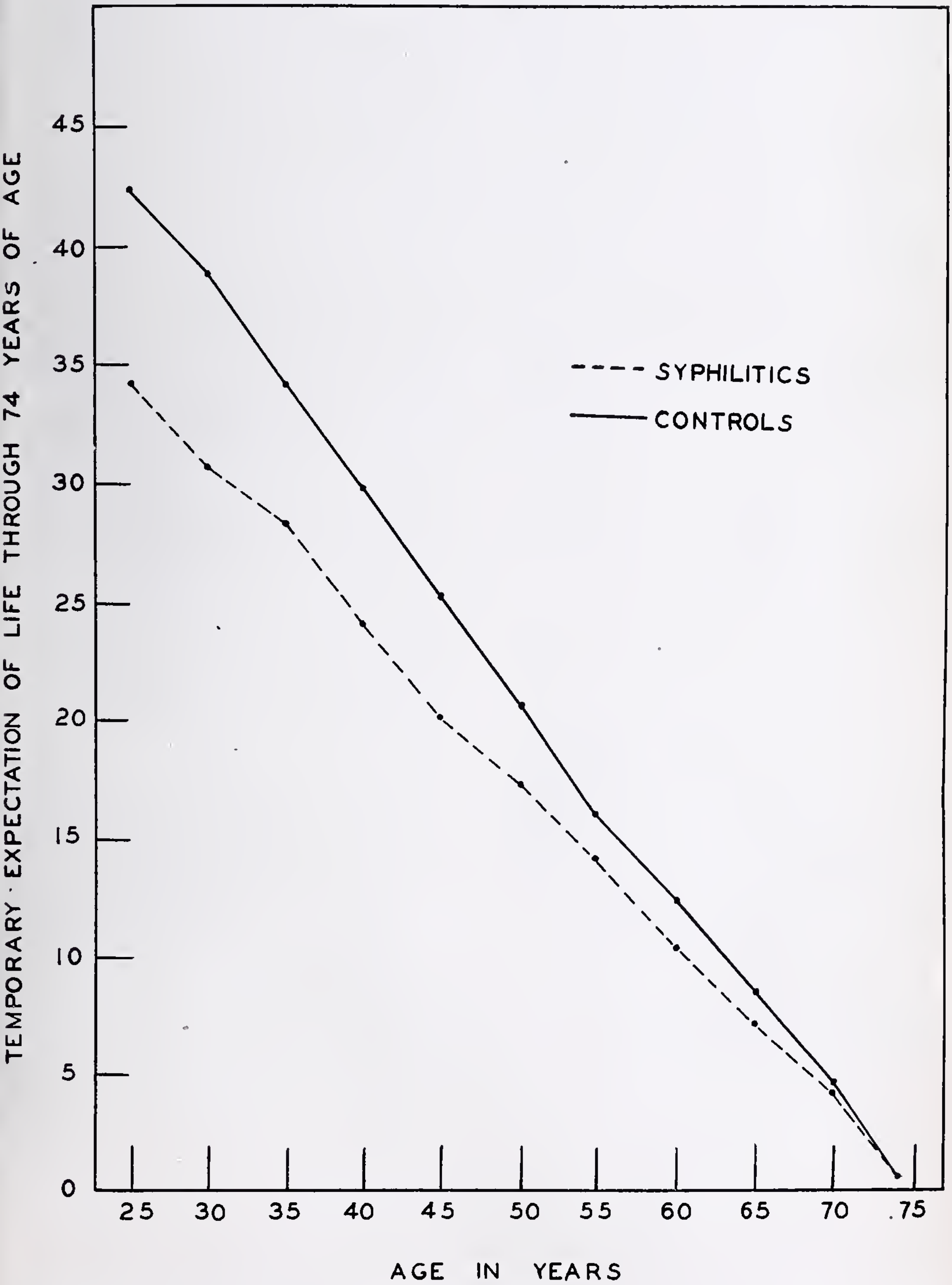
CHART 1.—*Mortality rates among Negro men with untreated acquired syphilis and among nonsyphilitic control population.*



There are several points of interest

about the mortality rates obtained. The curve for the control group lies entirely below that for the syphilitic group. The control group curve is smooth, without peaks or irregularities, which is what one expects in a normal population. The curve for the syphilitic group has 2 marked peaks. The first occurs at about age 30. There is no obvious explanation for this, but it may be associated with

Chart 2.—*Temporary expectation of life through age 74 among Negro men with untreated acquired syphilis and among nonsyphilitic control population.*



the fact that the control group curve is also slightly higher at its beginning than later on. Possibly there is some factor operating on Negro men living in the region which accounts for both curves, or possibly both are merely the result of chance. The second peak in the curve for the syphilitic group reaches its highest point at about age 50. A similar peak, or at least accelerated upward trend, has been found by Usilton and Miner (*2*) who ascribed it to the fact that deaths from cardiovascular syphilis are most frequently observed at about this age.

The mortality rates for single years of life estimated from the observed data were applied successively to a hypothetical group of 100,000 persons aged 25. By this means was calculated the number of persons who would still be alive at each age from 25 to 74 if they had been subjected to these particular mortality rates. The results for every fifth year are shown in the columns headed l_x in the table. And finally the so-called "temporary expectation of life" through age 74 was calculated. This value, shown in the columns headed $\overset{\circ}{e}_x$ in the tables and plotted in chart 2, is the average number of years of life under age 75 remaining to individuals reaching a given age.

From chart 2 and the corresponding data in the table it can be seen that the syphilitic individuals had a much shorter life expectancy than did the normal controls. At age 25 the normal individual averaged 8 more years of life than did the syphilitic of the same age. In other words, syphilis shortened the lives of its hosts by almost 20 percent. A similar percentage reduction in life expectancy is found at ages up to about 45, after which the difference between the 2 groups decreases with increasing age.

The experience upon which the life tables are based is quite limited in comparison with the material used for the construction of most complete life tables for human populations. However, the differences between the syphilitic and control groups are so large that there can be no doubt of their significance. Furthermore, comparison with the recent standard life tables for the United States (*3*) reveals that the results are at least reasonable, in that the mortality rates for our control group are quite similar to those for all Negro men in the United States. The discrepancies which do exist are readily accounted for by regional differences and chance fluctuation in a group as small as ours, where a single death, more or less, causes a large difference in the results.

For these reasons we feel that our results are valid, and that the general levels of the mortality rates of the 2 groups, as reflected in the average expectation of life, are reliable. The location and size of the "humps" observed in the mortality curves are, of course, approximations since they are based on a somewhat small experience.

In conclusion, it can be said that the life expectancy of a Negro man between the ages of 25 and 50 who is infected with syphilis and receives no treatment for his infection is on the average reduced by about 20 percent.

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The Effect of Treated Acquired Syphilis on Life Expectancy

Dudley C. Smith, M. D.,[1] and Martha C. Bruyere [2]

This study compares the mortality in a general population with the mortality in that portion of the same population which was known to be infected with syphilis. The area from which the population was drawn includes 11 counties in Virginia (Albemarle, Buckingham, Cumberland, Culpeper, Fluvanna, Greene, Louisa, Madison, Nelson, Orange, and Spotsylvania) and the city of Charlottesville.

These localities constitute a rural mountain area, which, by reason of its isolation, normally has a very stable population. There is the further advantage that practically all of the population of this area at some time obtains its medical care at the University of Virginia Hospital in Charlottesville, where routine blood tests have been made on all admissions since the early 1920's. In addition, an intensive case-finding, treatment, and follow-up program has been in effect since that time throughout the area.

Mortality data for the general population were supplied by the Bureau of Vital Statistics of the Virginia State Department of Health, who furnished tabulations of the number of deaths by age, race, and sex reported each year from 1927 through 1943. The populations were obtained from the 1930 census, since data were not available by age, race, and sex for each county in the 1920 census tabulations.

Data concerning the syphilitic portion of the population were obtained from the Department of Dermatology and Syphilology of the University of Virginia Hospital. They consist of observations made on patients 15 years of age or older with acquired syphilis admitted to that institution during the years 1920 through 1941. Both clinic and private patient records were used, so that the syphilitic population was not selected on the basis of ability to pay, thus reducing the economic and sociologic bias.

From 1920 through 1941 there were admitted to the University Hospital 2,908 patients from the selected area with acquired syphilis who were 15 years of age or older. Among these, 202 deaths were reported. Table 1 gives the distribution of these patients by race and sex.

Table 1.—*Number of syphilitic patients 15 years of age or older, admitted to the University of Virginia Hospital during the period 1920 through 1941, and number of deaths among such patients, by race and sex*

Race and sex	Number of patients admitted	Number of deaths reported
White male	540	46
White female	405	16
Negro male	979	65
Negro female	984	75
Total	2,908	202

The average duration of observation of individuals in the syphilitic population was about 4 years. All cases were observed for at least 1 month, and some few for as long as 20 years. The average years of observation in each race-sex group is given in table 2.

Table 2.—*Average length of observation, in years, of syphilis patients admitted to the University of Virginia Hospital, between 1920 and 1941, by race and sex*

Race and sex	Average years of observation
White male	3.79
White female	3.95
Negro male	3.56
Negro female	3.99

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[1] Department of Syphilology and Dermatology, University of Virginia Hospital, Charlottesville, Va.

[2] Statistician, Venereal Disease Division, U. S. P. H. S.

In both the general group and the syphilitic group all causes of death were included, and no attempt was made to isolate deaths due to syphilis per se. Nor was any attempt made to divide the material according to stage of syphilitic infection. In the first place, this would have reduced the number of cases in any one category, thus increasing the chance error. In the second place, any person with acquired syphilis, regardless of the stage at which it was first detected, is at risk of progressing to one of the late fatal stages; so that this factor should remain as an integral part of the data in investigating the mortality among such a group.

Comparison of the general and the syphilitic populations was made by means of the temporary expectation of life at the various ages obtained from an abridged life table constructed with 5-year age groups. The age of 15 years was chosen as the starting point for the life tables, because the number of persons with acquired syphilis and also the number of deaths prior to this age were too small to furnish reliable mortality rates. From the original data concerning each patient the total number of person-years of observation at each year of age was computed. Central death rates for each 5-year age group were obtained and from these the initial rates for each period were calculated in the usual manner. A similar process was carried out with the general population data. The significant portions of the resulting life tables are presented in tables 3 through 6.

The annual death rates per thousand at the beginning of each 5-year period for each of the race-sex groups can be found in the q_x column of each table. If these rates were plotted it would be seen that they do not follow smooth curves, which is due in large part to the relatively small size of the populations observed. However, when the data are used to compute the temporary mean expectation of life at each age interval, the resulting values form fairly regular curves, thus making the inherent trends more readily apparent.

TABLE 3.—*Abridged life tables for white males, selected areas in Virginia, 1930*

Age group	All white males					White males with acquired syphilis				
	Population	Number of deaths	Number surviving to age period out of 100,000 reaching age 15	Average number dying annually in age period out of 1,000 reaching the beginning of the age period	Temporary expectation of life to age 75 of persons surviving to age period	Person-years of observation	Number of deaths	Number surviving to age period out of 100,000 reaching age 15	Average number dying annually in age period out of 1,000 reaching the beginning of the age period	Temporary expectation of life to age 75 of persons surviving to age period
			l_x	$1{,}000q_x$	$\mathring{e}_x$			l_x	$1{,}000q_x$	$\mathring{e}_x$
15–19	5, 766	22	100, 000	3. 9	45. 55	32. 0	1	100, 000	24. 1	36. 87
20–24	4, 466	20	99, 609	4. 5	40. 78	211. 0	1	97, 588	3. 9	32. 90
25–29	3, 401	11	97, 780	2. 9	36. 54	330. 3	5	93, 732	14. 9	29. 16
30–34	2, 791	25	95, 113	9. 2	32. 51	289. 5	7	84, 682	24. 8	27. 05
35–39	3, 058	23	91, 031	7. 4	28. 87	251. 3	2	77, 446	6. 8	24. 41
40–44	2, 582	22	87, 678	8. 3	24. 90	235. 0	4	73, 940	16. 5	20. 46
45–49	2, 631	36	82, 069	13. 9	21. 46	224. 8	8	64, 895	36. 3	18. 02
50–54	2, 465	27	78, 184	10. 3	17. 49	187. 3	3	56, 119	14. 9	15. 55
55–59	2, 009	52	71, 894	26. 3	13. 83	124. 5	2	52, 756	15. 0	11. 41
60–64	1, 894	49	63, 215	24. 9	10. 44	67. 3	4	44, 845	59. 8	8. 03
65–69	1, 344	66	53, 423	48. 3	6. 97	54. 5	5	30, 720	89. 0	5. 78
70–74	894	72	39, 232	77. 7	3. 94	18. 8	2	19, 416	100. 3	2. 99

TABLE 4.—*Abridged life tables for white females, selected areas in Virginia, 1930*

Age group	All white females					White females with acquired syphilis				
	Population	Number of deaths	Number surviving to age period out of 100,000 reaching age 15	Average number dying annually in age period out of 1,000 reaching the beginning of the age period	Temporary expectation of life to age 65 of persons surviving to age period	Person-years of observation	Number of deaths	Number surviving to age period out of 100,000 reaching age 15	Average number dying annually in age period out of 1,000 reaching the beginning of the age period	Temporary expectation of life to age 65 of persons surviving to age period
			l_x	$1{,}000q_x$	$\mathring{e}_x$			l_x	$1{,}000q_x$	$\mathring{e}_x$
15–19	5,338	7	100,000	1.1	43.67	66.5	1	100,000	13.9	38.02
20–24	4,191	25	99,885	6.2	38.80	249.8	2	98,601	7.8	33.67
25–29	3,386	19	96,841	5.5	34.95	321.8	3	94,476	9.5	30.01
30–34	2,974	16	94,248	5.3	30.86	277.8	1	91,205	3.2	25.98
35–39	3,019	19	91,546	6.3	26.71	185.8	1	89,763	5.0	21.35
40–44	2,732	13	88,957	4.6	22.43	165.0	3	84,994	18.7	17.37
45–49	2,611	13	87,056	4.7	16.56	152.8	2	78,003	12.8	13.65
50–54	2,412	29	83,741	12.2	12.25	88.3	1	73,353	10.9	9.33
55–59	1,890	23	78,742	11.9	8.11	56.0	1	68,556	17.9	4.77
60–64	1,792	30	73,692	16.3	---------	41.3	1	61,739	23.9	---------

TABLE 5.—*Abridged life table for Negro males, selected areas in Virginia, 1930*

Age group	All Negro males					Negro males with acquired syphilis				
	Population	Number of deaths	Number surviving to age period out of 100,000 reaching age 15	Average number dying annually in age period out of 1,000 reaching the beginning of the age period	Temporary expectation of life to age 75 of persons surviving to age period	Person years of observation	Number of deaths	Number surviving to age period out of 100,000 reaching age 15	Average number dying annually in age period out of 1,000 reaching the beginning of the age period	Temporary expectation of life to age 75 of persons surviving to age period
			l_x	$1{,}000q_x$	$\mathring{e}_x$			l_x	$1{,}000q_x$	$\mathring{e}_x$
15–19	2,936	12	100,000	4.1	39.84	122.0	3	100,000	23.8	35.94
20–24	1,878	11	99,598	5.7	35.13	574.5	7	98,555	11.4	31.58
25–29	1,138	15	95,139	13.6	31.67	752.3	6	94,508	7.4	27.84
30–34	1,003	11	89,230	10.7	28.64	528.0	10	88,908	19.5	24.46
35–39	1,248	15	84,283	12.0	25.20	418.5	7	81,126	16.1	21.61
40–44	1,138	10	80,186	8.0	21.39	321.5	9	72.989	28.2	18.79
45–49	1,195	27	74,872	22.7	17.75	222.5	6	63,240	26.7	16.38
50–54	1,127	30	66,500	25.7	14.72	251.8	6	55,785	23.1	13.31
55–59	797	41	54,965	52.2	12.37	166.8	6	48,644	35.4	9.96
60–64	809	27	43,762	34.7	10.05	100.5	6	38,818	58.5	6.95
65–69	585	28	36,787	45.9	6.58	64.8	6	27,837	86.3	3.84
70–74	327	35	25,425	105.7	3.59	20.8	5	8,935	228.7	2.88

In order to determine whether the differences thus shown are real or merely the expression of chance fluctuation, Chi square tests were made between the crude

TABLE 6.—*Abridged life tables for Negro females, selected areas in Virginia, 1930*

Age group	All Negro females					Negro females with acquired syphilis				
	Popu lation	Number of deaths	Number surviving to age period out of 100,000 reaching age 15	Average number dying annually in age period out of 1,000 reaching the beginning of the age period	Temporary expectation of life to age 75 of persons surviving to age period	Person years of observation	Number of deaths	Number surviving to age period out of 100,000 reaching age 15	Average number dying annually in age period out of 1,000 reaching the beginning of the age period	Temporary expectation of life to age 75 of persons surviving to age period
			l_x	$1{,}000q_x$	$\mathring{e}_x$			l_x	$1{,}000q_x$	$\mathring{e}_x$
15–19	2, 597	11	100. 000	4. 1	38. 11	354. 5	4	100. 000	10. 7	35. 33
20–24	1, 769	18	96, 398	10. 5	34. 36	829. 5	13	89, 462	15. 6	33. 17
25–29	1, 290	12	91, 675	9. 0	31. 02	777. 8	11	82, 760	14. 2	30. 71
30–34	1. 177	16	86. 804	13. 7	27. 64	621. 0	3	78, 942	3. 8	27. 10
35–39	1, 309	18	81, 021	13. 5	24. 48	506. 0	10	74, 996	20. 3	23. 41
40–44	1, 292	22	75, 200	16. 9	21. 21	347. 8	6	67, 756	17. 1	20. 70
45–49	1. 163	23	68, 492	19. 0	18. 09	219. 5	2	63, 595	7. 9	16. 93
50–54	1, 121	41	59, 786	36. 8	15. 42	189. 8	5	58, 754	26. 9	13. 15
55–59	727	19	50, 959	24. 1	12. 75	117. 3	2	52, 505	15. 7	9. 48
60–64	713	36	42, 813	50. 2	9. 79	71. 8	3	47, 507	41. 3	5. 21
65–69	537	27	33, 263	48. 2	7. 02	18. 0	3	28, 228	172. 9	2. 28
70–74	375	30	24, 422	78. 0	3. 85	12. 8	2	4. 668	134. 6	----------

central death rates in the syphilitic and the total populations. By this means it was demonstrated that there were highly significant differences between the two sets of data. The remainder of the analysis serves to define and measure these differences.

The calculated temporary life expectancy of the syphilitic and of the general population of the selected area is presented graphically for each race-sex group in charts 1 through 4. In all of the four groups considered, the life expectancy of the syphilitic population is lower at every age period than that of the general population. As might be expected, the curves tend to meet in the upper age groups, except in the case of the Negro females, where, although the general rule of a lowered life expectancy for syphilitics still obtains, the difference is greatest in the upper rather than in the lower age groups. This probably does not indicate a real trend, however, since in this group the Chi squares between the basic mortality rates were not significant.

It is of interest to note that at age 30 the temporary life expectancy of white males with syphilis to age 75 was 5.5 years less than that of the general population at the same age, and that for Negro males to age 75 the decrease due to syphilis was 4.2 years, for white females to age 65, 4.9 years. Among Negro females to age 75 there was little difference, the loss being only one-half year. This latter is the group for which the general death rates showed no significant difference from those among the syphilitic population.

It must be remembered that the syphilitic population under investigation is a treated population. In fact, due to the intensive control program carried on at the University of Virginia Hospital over a long period of time, this group of syphilitic patients has probably received more therapy than would be true of a comparable group elsewhere. Since no untreated control group is available, the effect of treatment as a factor in lowered life expectancy cannot be estimated. It would appear from the present data, however, that the average life span of persons under routine therapy for syphilis is shorter than that of the uninfected persons.

CHART 1.—*Temporary expectation of life for white males, selected areas in Virginia, 1930*

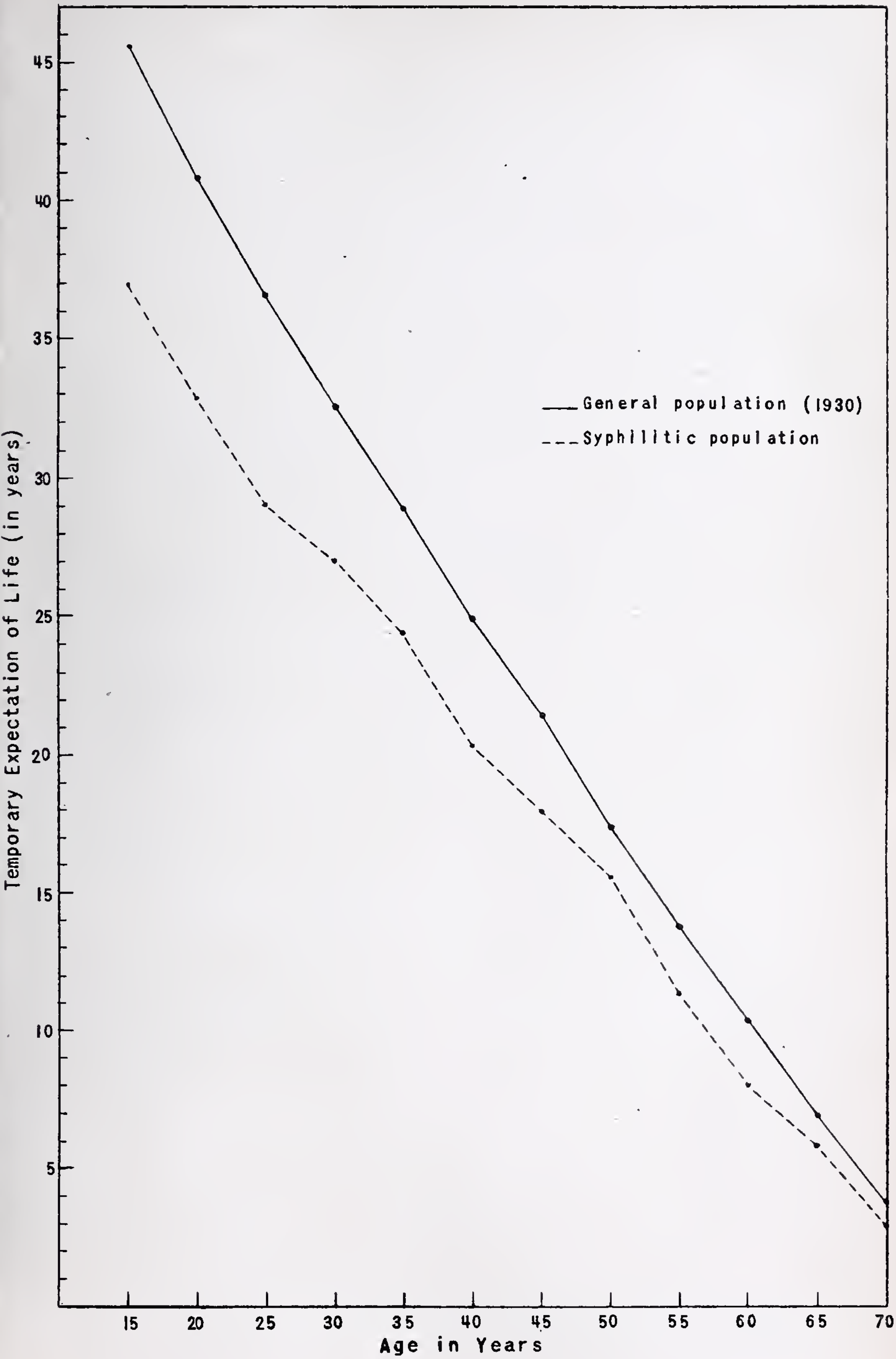


Chart 2.—*Temporary expectation of life for white females, selected areas in Virginia, 1930*

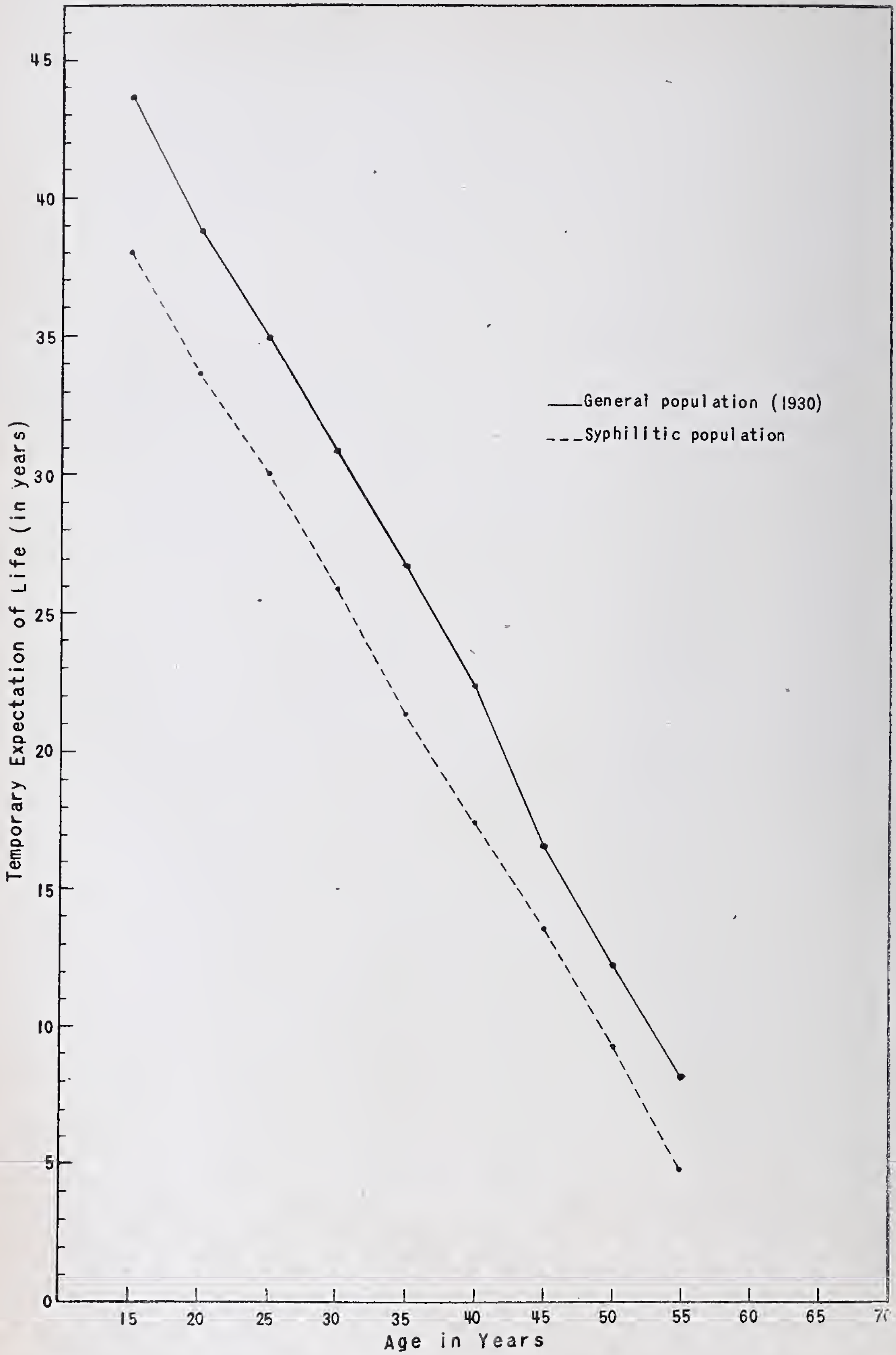


CHART 3.—*Temporary expectation of life for Negro males, selected areas in Virginia, 1930*

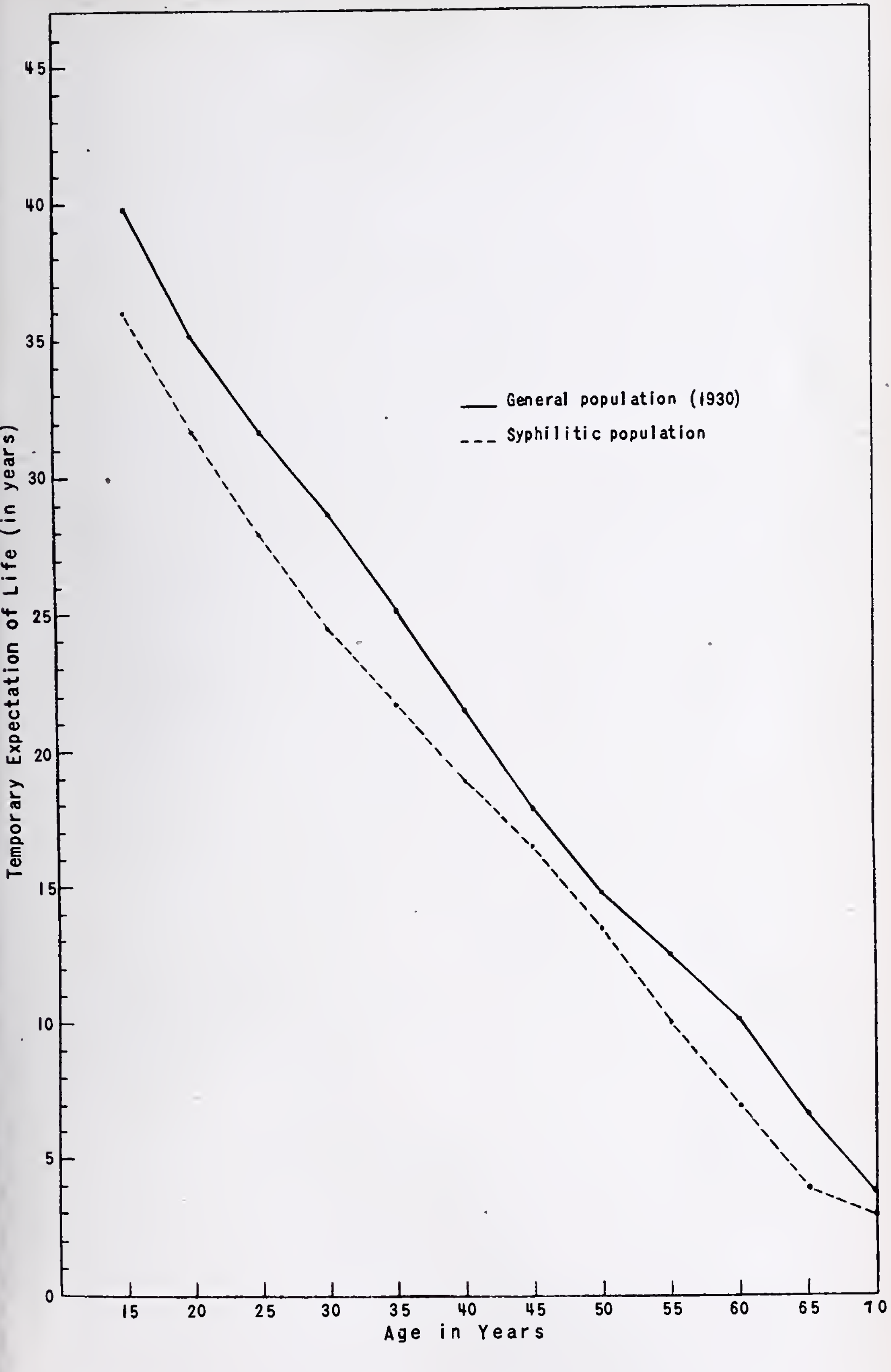
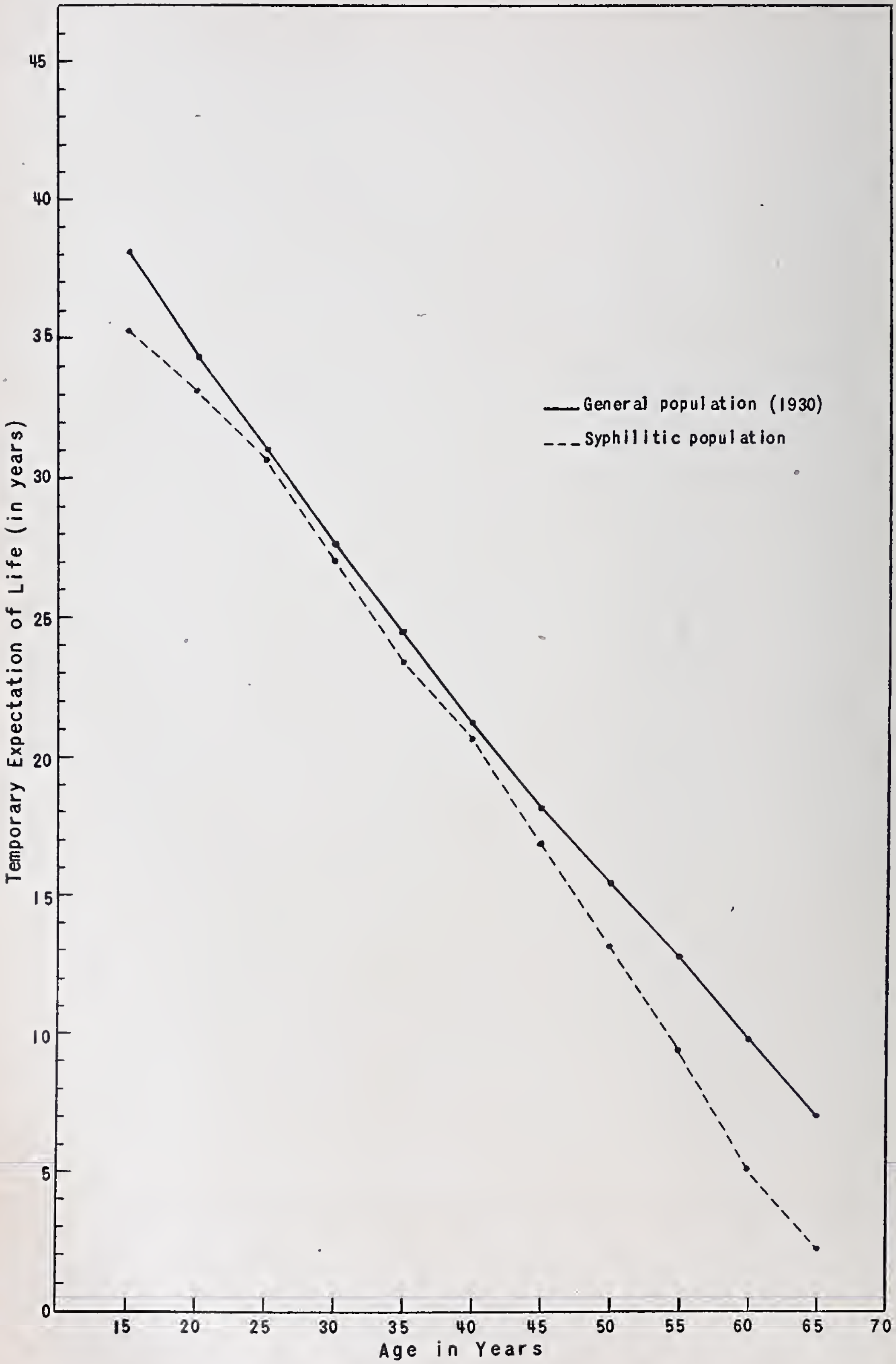


CHART 4.—*Temporary expectation of life for Negro females, selected areas in Virginia, 1930*



Mortality Trends for Syphilis

Lida J. Usilton, M. A.,[1]
United States Public Health Service

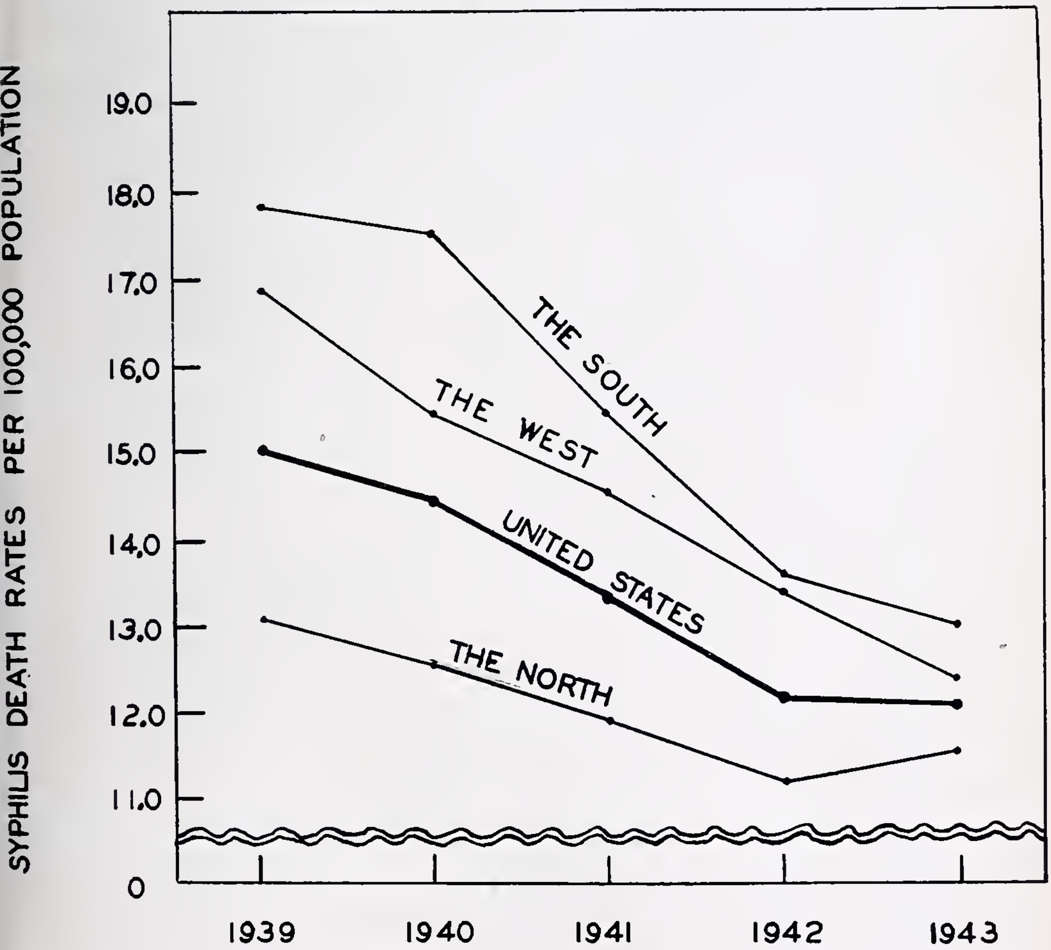
The present communication presents a compilation of data, published by the Bureau of the Census, relating to mortality attributable to syphilis. The trend of death rates from syphilis can be demonstrated through an analysis of statistics released annually giving the number of deaths reported in each calendar year classified according to the International List of Causes of Death. Table 1 gives the syphilis death rates per 100,000 population from 1939 through 1943 for the United States as a whole and for the various regions of the country separately; chart 1 presents the same data graphically. Data for years prior

TABLE 1.—*Number of deaths due to syphilis (all forms) per 100,000 population, for the total United States and regions, 1939–43*

Region	1939	1940	1941	1942	1943
North	13.1	12.6	11.9	11.2	11.6
South	17.8	17.5	15.4	13.6	13.0
West	16.8	15.4	14.6	13.4	12.4
United States	15.0	14.4	13.3	12.2	12.1

Source: Vital Statistics of the United States, Bureau of the Census.

CHART 1.—*Number of deaths due to syphilis (all forms) per 100,000 population, for the total United States and regions, 1939–43*



Source: Vital Statistics of the United States, Bureau of the Census.

Prepared with the assistance of B. E. Carroll, M. A., and Geraldine A. Gleeson, Venereal Disease Division.

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[1] Principal Statistician, Venereal Disease Division.

TABLE 2.—*Number of infant deaths due to syphilis per 1,000 live births, for the total United States and regions, 1933–43*

Region	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943
North	0.52	0.46	0.40	0.39	0.38	0.29	0.28	0.24	0.19	0.14	0.12
South	1.23	1.18	1.14	1.26	1.16	1.16	1.03	.99	.79	.58	.46
West	.61	.62	.68	.67	.61	.52	.44	.40	.26	.21	.19
United States	.79	.74	.70	.73	.69	.63	.57	.53	.41	.30	.25

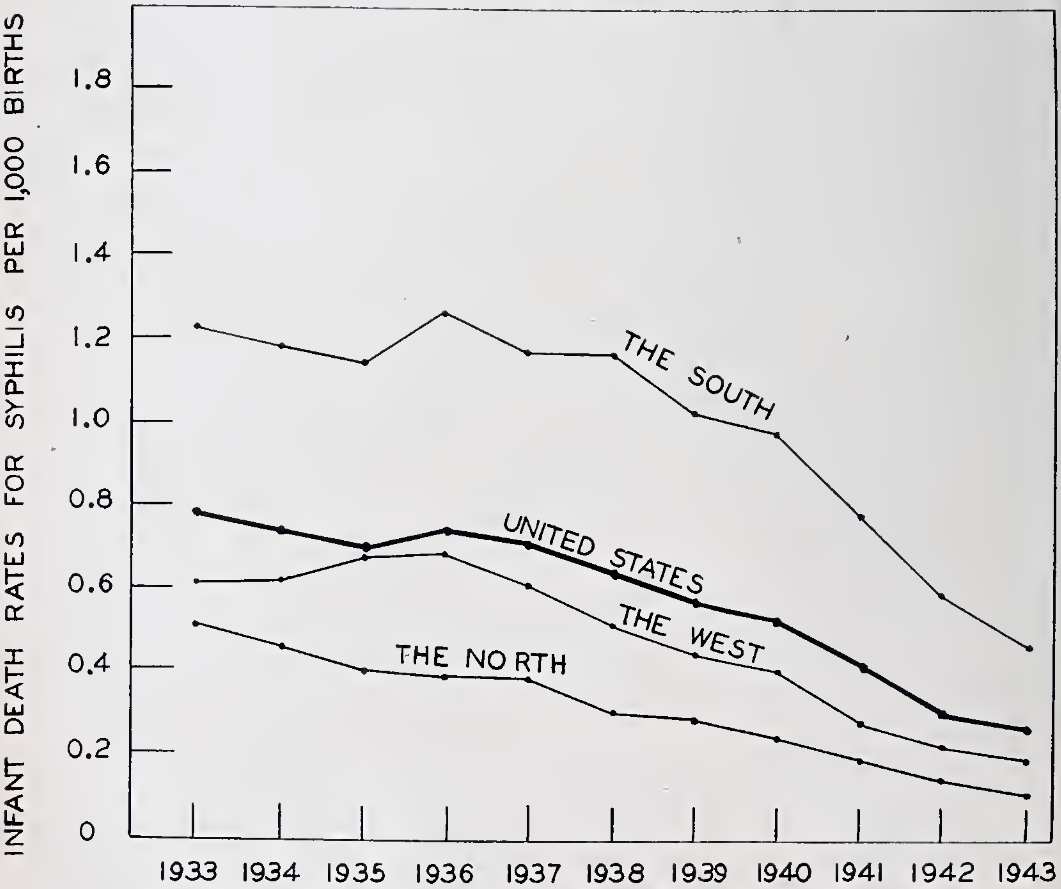
Source: Vital Statistics of the United States, Bureau of the Census.

to 1939 are of doubtful meaning because of changes in the International List of Causes of Death. For instance, aneurysm of the aorta was included with the general nonsyphilitic classification "Aneurysm (except of heart)."

As can be seen from table 1 and chart 1, since 1939 there has been an appreciable and steady decline. The total United States rate dropped from 15.0 in 1939 to 12.1 in 1943, every region of the country contributing to the lowered rates. The southern and western States experienced greater percentage decreases than did the northern States. However, their 1939 rates were considerably higher.

The trend in total syphilis death rates is a summation of the death rates from a number of fatal syphilitic conditions. Of these, separate investigations were made for deaths from syphilis in children under 1 year of age, paresis, and tabes dorsalis. Cardiovascular syphilis was not included because so large a propor-

CHART 2.—*Number of infant deaths due to syphilis per 1,000 live births, for the total United States and regions, 1933–43*



Source: Vital Statistics of the United States, Bureau of the Census.

TABLE 3.—*Number of deaths due to paresis per 100,000 population, death-registration States of 1910 and the expanding registration area, 1910–43*

Year	Death-registration States of 1910	Expanding death-registration area
1910	5.57	5.57
1911	7.01	6.81
1912	7.40	6.78
1913	7.33	7.00
1914	7.52	7.16
1915	7.81	7.49
1916	8.02	7.33
1917	8.08	7.23
1918	7.85	7.34
1919	6.38	5.75
1920	6.32	5.81
1921	7.01	6.34
1922	7.46	6.63
1923	7.55	6.59
1924	7.15	6.33
1925	6.70	5.82
1926	6.35	5.57
1927	5.54	4.95
1928	5.17	4.66
1929	4.78	4.33
1930	4.33	4.07
1931	4.35	3.93
1932	4.20	3.82
1933	3.92	3.61
1934	3.99	3.80
1935	3.78	3.61
1936	3.50	3.47
1937	3.26	3.23
1938	3.48	3.47
1939	3.59	3.44
1940	3.50	3.36
1941	3.35	3.24
1942	3.39	3.37
1943	3.54	3.54

Source: Vital Statistics of the United States, Bureau of the Census.

tion of it was not so classified prior to 1939 but was included under the title "Aneurysm (except of heart)."

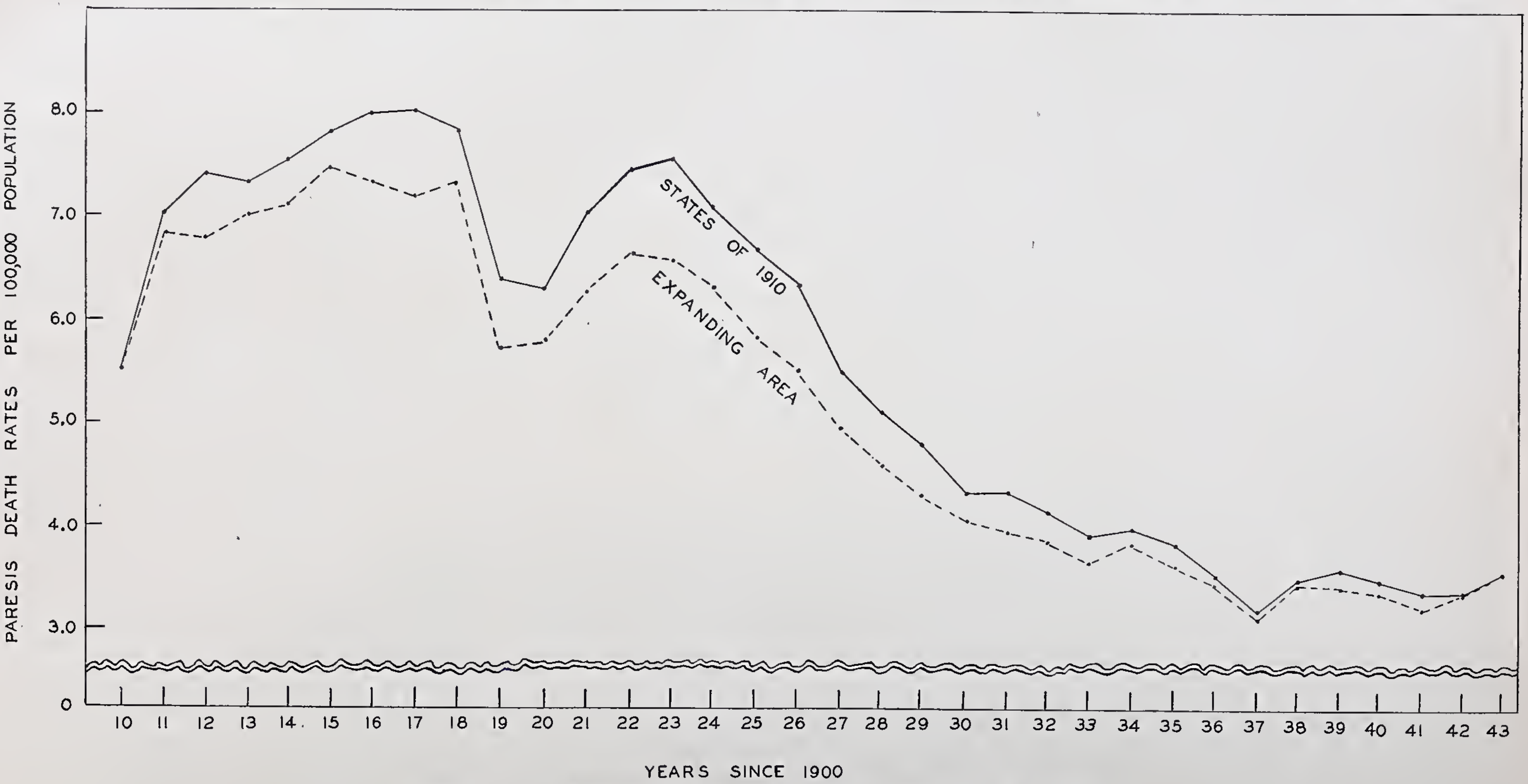
In the compilation of reported infant deaths from syphilis, the data reported from 1933 on were used. The changes in the 1939 revision of the International List of the Causes of Death did not affect the classification of deaths from congenital syphilis. Therefore, the data could be used for the years back to 1933, when the birth and death-registration areas first included the whole country. Prior to that year the data could not be used because the birth and death-registration areas did not coincide. Table 2 and chart 2 present the infant death rates per 1,000 live births from 1933 through 1943. There has been a marked decline in death rates from syphilis for infants under 1 year of age. The rate for the United States as a whole in 1943 was less than one-third that in 1933. The same trend was observed in every region of the country. The greatest decrease in rate occurred in the northern States, from 0.52 in 1933 to 0.12 in 1943. However, looking at chart 2, it can be seen that since 1938 the rates in the southern States have dropped precipitously, although there had been little change in the trend previously. The decline in rates of infant mortality due to syphilis reflects not only improvement in general venereal disease control, but more specifically the preven-

TABLE 4.—*Number of deaths due to tabes dorsalis per 100,000 population, death-registration States of 1910 and the expanding registration area, 1910–43*

Year	Death-registration States of 1910	Expanding death-registration area
1910	2.66	2.66
1911	2.74	2.72
1912	2.60	2.54
1913	2.68	2.62
1914	2.63	2.53
1915	2.72	2.60
1916	2.59	2.35
1917	2.58	2.34
1918	2.55	2.31
1919	2.22	2.01
1920	2.06	1.84
1921	2.09	1.90
1922	2.11	1.82
1923	1.95	1.73
1924	1.94	1.66
1925	1.80	1.60
1926	1.75	1.51
1927	1.53	1.35
1928	1.50	1.31
1929	1.38	1.21
1930	1.29	1.10
1931	1.16	1.00
1932	1.16	.99
1933	1.03	.90
1934	1.11	.91
1935	.85	.74
1936	.93	.78
1937	.81	.69
1938	.74	.64
1939	.70	.60
1940	.65	.56
1941	.62	.50
1942	.53	.44
1943	.57	.47

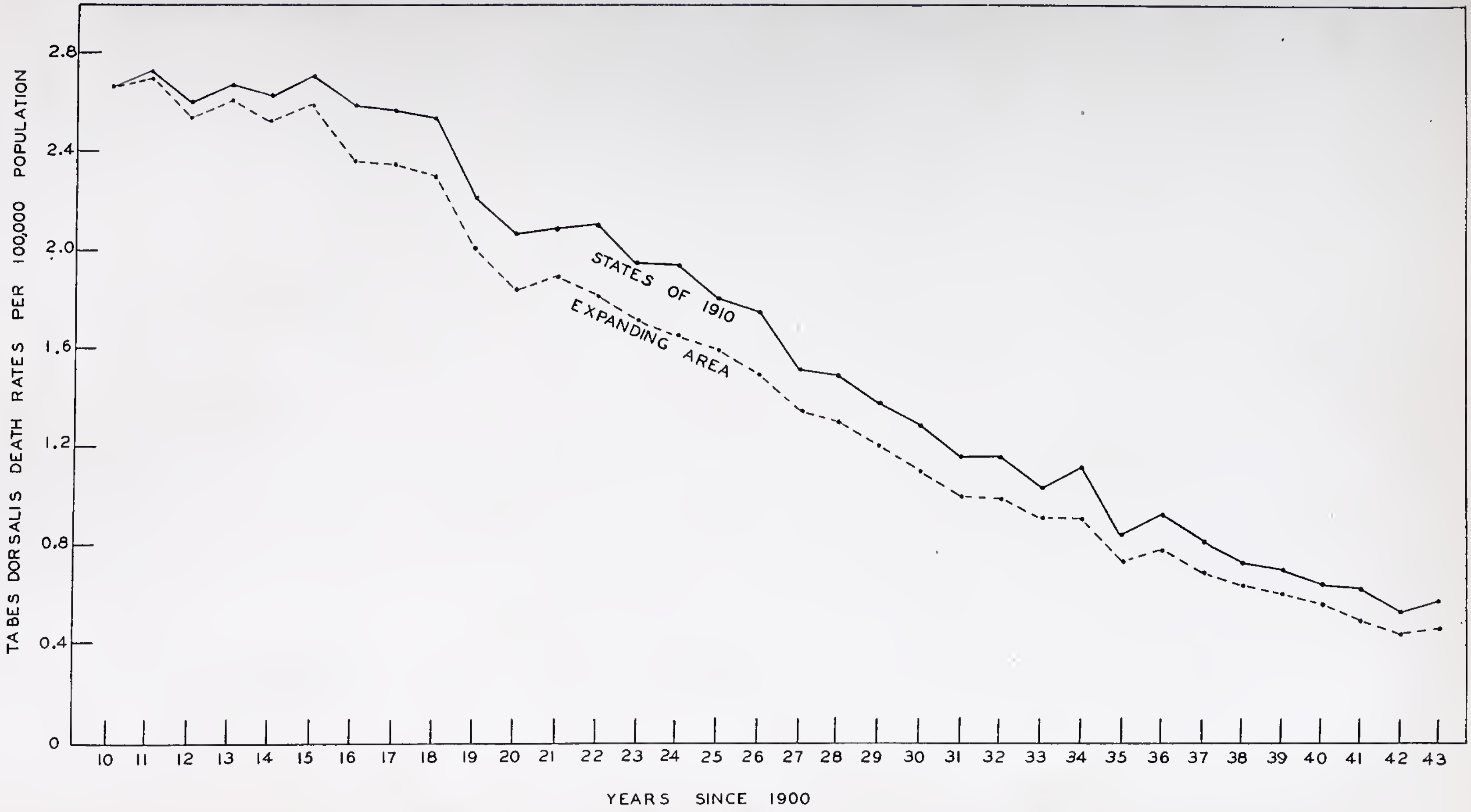
Source: Vital Statistics of the United States, Bureau of the Census.

CHART 3.—*Number of deaths due to paresis per 100,000 population, death-registration States of 1910 and the expanding registration area, 1910–43*



Source: Vital Statistics of the United States, Bureau of the Census.

CHART 4.—*Number of deaths due to tabes dorsalis per 100,000 population, death-registration States of 1910 and the expanding registration area, 1910–43*



Source: Vital Statistics of the United States, Bureau of the Census.

tion of occurrence of congenital syphilis through treatment of syphilis in women during pregnancy and the finding and treating of children under 1 year of age who have congenital syphilis.

The periodic revisions of the International List of the Causes of Death introduced only minor changes into the classification of deaths due to paresis and tabes dorsalis. Furthermore, the inclusion of additional States in the death-registration area from time to time did not materially affect the trend, as is shown by the fact that almost exactly the same pattern was followed by rates calculated for only the original death-registration States of 1910 and those calculated for the expanding death-registration area.

The mortality rates per 100,000 population for paresis rose from 1910 to 1917, dropping abruptly from 1918 to 1919; they then climbed until 1923, although they never again reached the peak of 1917. The sharp decline in 1918 is similar to one which appears in the trend of the death rates for all chronic diseases and which has been reported to be associated with the influenza epidemic.

The upward trend flattened out considerably from 1922 to 1923, and from 1923 to 1937 there was a constant downward trend. Malaria therapy for the treatment of paresis made its appearance in 1922 and may be largely responsible. The rates fell rapidly from 1923 to 1930 and then declined more gradually until 1937. There has been no further lowering of the rates since 1937, the trend line remaining more or less level at about 3.0 to 3.5 per 100,000 population.

The trends observed were quite similar for the States of 1910 and for the expanding death-registration area. For the States of 1910 the rate fell from 7.55 per 100,000 population in 1923 to 3.26 in 1937; for the expanding area the respective rates were 6.59 and 3.23.

The trend line for mortality rates from tabes dorsalis has been continuously downward since 1910, as can be seen from chart 4, which was constructed from the rates per 100,000 population tabulated in table 4 for the period 1910 through 1943. Unlike the trend for death rates from paresis, there has been remarkably little fluctuation, although the same accelerated downward rate was observed at the time of the influenza epidemic in 1918 and 1919. The rate for States of 1910 was 2.66 in 1910 and 0.57 in 1943; in the expanding area of death-registration, the rate fell from 2.66 to 0.47. The tendency toward a low constant rate seen in the data relating to paresis has not been observed in the tabetic death rates.

CURRENT LITERATURE

Note: Abstracts of any article listed below are available on request. In addition, abstracts of all articles concerned with venereal diseases or related subjects which have been published in the better known journals both here and abroad during the past 20 years are in the files. These are open to workers in the field. An asterisk (*) before a title indicates that the article is abstracted below.

ACTA DERMAT.-VENEREOL., STOCKHOLM

Genital diphtheria transmitted by sexual intercourse. T. M. Vogelsang and R. S. Melsom. 25: 281, Nov. 1944.

AM. J. HYG., LANCASTER

Complement fixation in malaria and syphilis. Frances Babin and Anna Dean Dulaney. 42: 167–173, Sept. 1945.

AM. J. NURSING, NEW YORK

The use of penicillin in the SWPA. Alice R. Clarke. 45: 938–940, Nov. 1945.

AM. J. PATH., ANN ARBOR

*The diagnosis of granuloma venereum from frozen sections stained with polychrome methylene blue. George Margolis. 21: 543–547, May 1945.

The diagnosis of granuloma venereum from frozen sections stained with polychrome methylene blue.—The author discusses the use of frozen sections stained by Terry's polychrome methylene blue in the diagnosis and study of granuloma inguinale. Details of the preparation of the stain and its application to frozen tissue sections are given.

Staining of the Donovan bodies by this method is much superior to that obtained with hematoxylin and eosin or Romanowski stains applied to smears, and it is much more rapid than the section methods of Pund and Greenblatt. In addition, the details of the morphology of the Donovan bodies, especially in the capsular zone, are demonstrated better by this technic than by any other method.

The author points out that if the disease always presented a straightforward clinical picture, the smear technic or the slower section methods of Pund and Greenblatt would be satisfactory, but the tendency of the infection to simulate other processes (as in the cervix uteri where the lesions are frequently diagnosed as carcinoma) makes necessary a rapid and efficient biopsy technic.

AM. J. PUB. HEALTH, NEW YORK
Public health in the reconversion period. Thomas Parran. 35 : 987–993, Oct. 1945.
The legal basis for venereal disease control. James H. Lade. 35 : 1041–1046, Oct. 1945.

ANGLO-AMER. CARIBBEAN COMM. REPORT, WASHINGTON
Venereal disease control program. pp. 22–25, 1944.

BRASIL-MED., RIO DE JANEIRO
Penicillin in tertiary yaws. F. Nery Guimarães. 59 : 89–106, Mar. 17, 24, 31, 1945.

BRIT. J. SURG., BRISTOL
Penicillin therapy in gonorrhoea. A report of 1,000 cases of sulphonamide-resistant gonorrhoea and 100 cases of acute gonorrhoea previously untreated. John W. Robinson. (Suppl.) 32 : 211–214, July 1944.

BRIT. M. J., LONDON
Administration of penicillin by intramuscular infusion. E. C. Turton. No. 4417 : 283–284, Sept. 1, 1945.

BULL. JOHNS HOPKINS HOSP., BALTIMORE
*Further observation on the treatment of yaws with penicillin. Richard Whitehill and Robert Austrian. 76 : 274–294, June 1945.

Further observation on the treatment of yaws with penicillin.—This is a report on the treatment with penicillin of 42 cases of yaws, including 5 primary, 36 secondary, and 1 tertiary yaws. Nine patients had been treated previously with an arsenic or bismuth compound and 33 had received no specific therapy. Diagnosis was established by finding spirochetes morphologically identical with Treponema pertenue in the cutaneous lesions and by the presence of a positive Kahn reaction. All patients were hospitalized and treated with penicillin dissolved in normal saline to make a final concentration of 10,000 units per cubic centimeter, administered intramuscularly at 3 or 4 hourly intervals in doses of 1.5 cc. to 3 cc. Groups of patients were treated with different total amounts of penicillin, ranging from 100,000 to 2,400,000 units.

In every instance the absence of spirochetes was confirmed by darkfield examination 24 hours after their initial disappearance. No toxic reactions were observed. No difference in the rapidity of healing of the primary and secondary cutaneous lesions was noted, nor did the results obtained vary with total dosage employed. In 37 cases, healing was complete in 3 weeks; in 4 cases an ankle lesion required 8 weeks to heal. The single case of tertiary yaws, previously refractory to therapy with arsenic, bismuth, and potassium iodide but responsive to penicillin, is described in detail.

Penicillin brought about the rapid and complete healing of the cutaneous lesions of 42 cases of yaws, with but 1 clinical relapse which responded well to retreatment. The use of 100,000 units of penicillin administered within 12 hours merits further study as the dosage most suitable for the mass treatment of infectious yaws.

BULL. NEW YORK ACAD. MED., NEW YORK

Repository injection of penicillin in water-in-oil emulsion: effect on gonorrhea. A. Cohn, B. A. Kornblith, I. Grunstein, K. J. Thomson and Jules Freund. 21: 442, Aug. 1945.

Oral administration of penicillin for treatment of gonococcal infections. Alfred Cohn, Borris A. Kornblith and Isaak Grunstein. 21: 446, Aug. 1945.

CANAD. M. A. J., MONTREAL

*A study of personality factors among venereal disease patients. G. O. Watts and R. A. Wilson. 53: 119–122, Aug. 1945.

A study of personality factors among venereal disease patients.—This paper presents a study of personality factors contributing to the acquisition of venereal disease among 292 cases occurring in soldiers from one military district in Canada. Psychiatric reports, training records, and Army examiners' reports were used for information. A control group for the survey consisted of 158 soldiers selected at random from the personnel files. Tables are given showing a comparison between the venereal disease patients and the control group with regard to age and marital status, psychiatric factors, and military environment factors.

It is shown in the age and marital status chart that the percentage of men under 22 in the control group is 15 percent higher than in the venereal disease group, suggesting that venereal disease is less likely to occur in the soldier under 22 than in the 22 to 30 age group. The percentage of married and single men is essentially the same in the venereal disease and control groups.

The chart presenting psychiatric factors shows venereal disease occurring twice as often in soldiers with abnormal childhood environment as in the control group. Marital incompatability in the venereal disease group was 3 times as high as in the control group, and drunkenness was 19 times more frequent among the venereal disease patients. Forty-three percent of the venereal disease group had been referred to the psychiatrist in contrast with 5 percent of the control group. It was also shown that 95 percent of the venereal disease group receiving psychiatric examination were emotionally or intellectually handicapped, and 20 percent were found to be mentally dull.

The military environment factor chart reveals that the percentage of men with poor military efficiency was twice as high in the venereal disease group, and poor conduct among this same group was 4 times more prevalent. Three times as many men in the venereal disease group stated dissatisfaction with their Army placement.

The authors state that even though penicillin therapy seems to be very effective against gonorrhea and early syphilis, it does not affect the behavior habits which are responsible for the acquisition of venereal disease and which must also be treated.

CLEVELAND VD INFORM., CLEVELAND

Serological survey of Cleveland laboratories continues. Venereal disease news items. 1: 1, Oct. 1945.

Venereal disease control in industry. Herbert G. Dyktor. 1: 2–3, Oct. 1945.

Pharmacists cooperate in venereal disease control program. Harry G. Baskind and Joseph T. Matowsek. 1: 2–3, Nov. 1945.

COLORADO STATE BOARD OF HEALTH BULL., DENVER

Rapid treatment of venereal disease in Colorado. 9: 12–15, Oct. 1945.

EPIDEMIOL. INFORM. BULL., UNRRA, WASHINGTON

Trend of syphilis cases in Europe, 1936–44. 1: 603, Aug. 31, 1945.

Epidemic diseases in Japan. 1: 759–764, Oct. 31, 1945.

Reduction of infectious diseases at Manila. 1: 765, Oct. 31, 1945.

GEORGIA'S HEALTH, HAPEVILLE

The "minor" venereal diseases. 25: 4, Nov. 1945.

HEALTH NEWS, ALBANY

The increased spread of venereal disease. James H. Lade. 22: 189–190, Nov. 12, 1945.

ILLINOIS M. J., CHICAGO

Penicillin reactions in the treatment of gonorrhoea. 88: 178–180, Oct. 1945.

Global disease. An historical perspective. David J. Davis. 88: 186–194, Oct. 1945.

Spirochaetes in feces. G. Howard Gowen. 88: 202–203, Oct. 1945.

IRISH J. M. SC., DUBLIN

Sulphonamide-resistant gonorrhea in the male. Bethel Solomons, Jr. No. 232: 106–116, Apr. 1945.

J. A. M. A., CHICAGO

*Oral penicillin. Maxwell Finland, Manson Meads and Edwin M. Ory. 129: 315–320, Sept. 29, 1945.

*Penicillin by mouth: report of a clinical trial. Sidney Ross, Frederic Gerard Burke and P. A. McLendon. 129: 327–332, Sept. 29, 1945.

*Control of syphilis in pregnant women under the care of the general practitioner. Herman M. Soloway. 129: 500–503, Oct. 13, 1945.

*The treatment of cardiovascular syphilis with penicillin. Ralph E. Dolkart and George X. Schwemlein. 129: 515–516. Oct. 13, 1945.

Oral penicillin.—Included in a study of the effective absorption of penicillin after oral administration are 61 patients with acute gonorrhea.

In the various preparations and dosage schedules employed, 5 patients were given 4 doses of 25,000 units of ordinary penicillin in saline solution mixed with aluminum hydroxide gel. Two other patients took only a single dose and left the clinic, but returned for the follow-ups and were observed without further treatment. In general, the total amounts, ranging from 120,000 to 800,000 units, were given in 4 to 6 doses, 1 to 2 hours apart. Half the patients received treatment without breakfast, while the others received treatment 1 or 2 hours after breakfast. The majority had a light meal after the third or fourth dose.

Serum levels comparable with those obtained from 15,000 or 20,000 units given intramuscularly were obtained by administering regularly 90,000 units of penicillin by mouth one-half hour before breakfast. The serum levels were irregular and unpredictable when the same amount of penicillin was given one-half hour after breakfast. The serum levels obtained with ordinary penicillin in saline solution were at least as high and as well sustained as with any of the special oral preparations tested, both before and after meals, except possibly when aluminum hydroxide gel was used in addition to the saline solution of penicillin after a meal.

The results of the preliminary clinical trials in gonorrhea suggest that oral penicillin therapy is feasible in these infections. The majority of cases were cured with each of the doses used. However, the authors suggest that probably doses of 450,000 units or more gave cure rates comparable to those usually reported from 100,000 units of penicillin given intramuscularly, but the small number of cases is not sufficient to prove this. Except with the largest doses, clinically, the response of individual patients to oral therapy was not quite so good as that observed after the full intramuscular dose. After oral treatment, some dysuria and mucoid or slightly purulent discharge continued for 12 to 24 hours longer in spite of the fact that organisms were not seen on smear or obtained from cultures of the exudate after the last dose was given. The 7 cases which failed were probably recurrences and all were subsequently cured after 4 intramuscular injections of 100,000 units.

The authors conclude that oral therapy should prove effective in gonorrhea and in other infections in which low doses of parenteral penicillin have proved adequate; that parenteral penicillin should be used to initiate therapy in all severe infections and in those which experience has already shown to require prolonged treatment with large parenteral doses.

Penicillin by mouth: report of a clinical trial.—The authors report a preliminary clinical study of the efficacy of penicillin when given by the oral route.

In a clinical trial, 10 children with gonorrhea, 2 with pneumonia, and 2 with cellulitis were given a 100,000 unit capsule of penicillin every 3 hours, resulting in prompt recovery, and proving that adequate therapeutic blood concentrations of penicillin after oral administration can be obtained when the drug is protected against inactivation by gastric acidity.

To avoid inactivation of the penicillin, the authors adopted a plan of preliminary neutralization of the gastric acidity and administration of the antibiotic in a double gelatin capsule hardened by immersion in formaldehyde-alcohol solution. By this method, 1 capsule of 100,000 units given every 3 hours produced penicillin levels constantly within or above the range of effective antibacterial action against the susceptible organisms.

Since earlier experiments indicated that slightly higher penicillin blood levels could be obtained when the capsules were taken on an empty stomach, a light diet with low fat content and moderate fluid intake was used routinely. This was followed by a 3-hour schedule of administration of the drug along with a slight adjustment of the diet schedule so that penicillin and the meals were at no time given simultaneously.

In some cases penicillin assays were done at the end of one-half hour, 1, 2, and 3 hours. Penicillin content was determined according to the method of Rammelkamp, using beta hemolytic streptococcus 203 as the indicator organism. The assays showed that after the oral administration of 100,000 units of penicillin in a double capsule, there was a relatively rapid appearance of large amounts of penicillin in the blood serum. In the majority of cases, the highest titers were observed in the first 30 to 90 minutes after ingestion, indicating prompt absorption from the small bowel. Subsequent levels showed decreasing amounts during the next 2 hours. Generally, there was a continued presence of therapeutic serum levels of penicillin 3 hours after the ingestion of a 100,000 unit capsule. The highest penicillin serum levels ranged between 0.624 and 2.48 Florey units with one exception, when 0.156 unit was recorded. In 7 cases, penicillin levels were assayed during a consecutive 6-hour period demonstrating an incremental rise in the blood penicillin concentration resulting from the ingestion of a second capsule 3 hours after the first dose.

The authors conclude that when these capsules are administered every 3 hours, therapeutic concentrations can be maintained constantly throughout the course of treatment for all susceptible infections; that the relatively large doses of penicillin employed produced no toxic manifestations in the children.

Separate discussions and case histories are given on the patients under treatment for these 3 diseases.

Control of syphilis in pregnant women under the care of the general practitioner.—A report of the outcome of 1,448 cases of syphilitic pregnant women treated by private physicians is given by the author.

Recommended treatment consists of a weekly muscular injection of a bismuth compound and 8 to 10 intravenous injections of an arsenical with an occasional 4–week rest period. It is stated that contrary to some opinions, pregnant women tolerate antisyphilitic treatment very well; no fatalities occurred in the group studied. There were 21 reports of "severe" reactions.

The results of this program showed 518 (94.13 percent) normal living nonsyphilitic children in the 550 cases in which treatment was started before the end of the fourth month of pregnancy. In 134 cases in which treatment was begun before the end of the fifth month, there were 112 (83.58 percent) normal nonsyphilitic children. Of the 409 cases of syphilitic pregnant women placed under treatment after the fifth month, 207 (50.6 percent) normal nonsyphilitic children were born. The 355 women who received no antisyphilitic treatment gave birth to 93 (26.48 percent) nonsyphilitic children.

The author points out that special education on the cause, spread, and cure of syphilis is needed for the general practitioner, the midwife, and the general public.

The treatment of cardiovascular syphilis with penicillin.—As a preliminary report, 2 case histories are given showing the necessity for discontinuation of penicillin therapy for syphilitic aortitis because of untoward effects.

Case 1 presents a 56-year-old white man who had been receiving irregular syphilotherapy for 27 years, at the end of which time his blood test was reported negative. A diagnosis of active syphilitic aortitis was made upon the first hospital admission and during 4 readmissions in 3 years the patient was treated with several courses of bismuth subsalicylate in oil. The use of arsenicals was considered undesirable because of coronary artery involvement.

At the time of his fifth hospitalization an attempt was made to treat the patient with penicillin. At this time no change in the condition of the heart was noted. On Sept. 23, 1944, he was given 10,000 units of sodium penicillin in distilled water intramuscularly. No untoward effects occurred and on Sept. 24 the dosage was repeated with no reaction. The next day after the administration of 25,000 additional units of penicillin the patient experienced 4 episodes of anginal pain, relieved by erythrol tetranitrate. Twenty thousand units of penicillin were given the same afternoon and 60,000 units in 3 doses were administered the next day. The patient developed 7 episodes of anginal pain together with a sense of heart consciousness. The following morning an electrocardiogram revealed premature ventricular extrasystoles, not heretofore evidenced. Penicillin therapy was discontinued.

Case 2 involves a 56-year-old man clinically diagnosed as having acute lingual tonsillitis, syphilitic aortitis, and tabes dorsalis. Past history included an untreated penile sore 30 years previous to hospitalization and the medical record showed recent antisyphilitic treatment of bismuth, potassium iodide, and neoarsphenamine administered over a period of 3 years.

After admission to the hospital, a total of 700,000 units of sodium penicillin was given intramuscularly for 3 days. Clinical response was satisfactory until the third day when the patient complained of intermittent precordial pain which ceased the following morning after discontinuation of penicillin therapy. No precordial distress was experienced prior to administration of penicillin. The patient's throat condition subsided uneventfully and he was dismissed on the seventh hospital day.

The authors discuss explanations advanced by investigators of the electrocardiographic changes after penicillin treatment. Wile is reported to have commented that cardiovascular syphilis should never be treated by intensive methods because of reactions such as those noted by the authors in this paper.

J. AM. PHARM. A. (SCIENTIFIC ED.), BALTIMORE

Streptomycin—origin, nature, and properties. Selman A. Waksman and Albert Schatz. 34: 273–291, Nov. 1945.

J. IMMUNOL., BALTIMORE

Studies on the purification of the syphilis antigen. E. Fischer, R. Fischer-Dallmann and R. Boné. 51: 117–125, Aug. 1945.

J. INDIANA M. A., INDIANAPOLIS

Some aspects of cardiology as seen at the Veterans Administration, Indianapolis, Indiana. L. M. Sales. 38: 293–295, Sept. 1945.

Committee on venereal disease. Annual report. 38: 355–356, Sept. 1945.

Supplementary report of Venereal Disease Committee of the Indiana State Medical Association. 38: 403, Oct. 1945.

J. LAB. & CLIN. MED., ST. LOUIS

Penicillin sensitivity of strains of six common pathogens and of hemophilus hemolyticus. Manson Meads, Edwin M. Ory, Clare Wilcox and Maxwell Finland. 30: 725–730, Sept. 1945.

Oral penicillin in the treatment of gonorrhea. Alfred H. Free, Lyman F. Huffman, Harry R. Trattner and Helen B. Brown. 30: 738–740, Sept. 1945.

J. M. A. GEORGIA, ATLANTA

False positive reactions in the serodiagnostic tests for syphilis. 34: 184–185, Sept. 1945.

Early congenital syphilis. Edwin R. Watson. 34: 200–203, 208, Oct. 1945.

J. M. SOC. NEW JERSEY, TRENTON

Local reaction to penicillin given by mouth. E. Clarence Kern. 42: 326, Oct. 1945.

J. NAT. M. A., NEW YORK

Methods of administration of penicillin adaptable to office treatment of gonococcal infections. Chas. H. Garvin. 37: 180–181, Nov. 1945.

J. NERV. & MENT. DIS., NEW YORK

Acute spinal epidural abscess as a complication of lumbar puncture. Leo Rangel and Frank Glassman. 102: 8–18, July 1945.

J. ROY. ARMY M. CORPS, LONDON

Some experiences in the treatment of venereal disease among British troops in Iraq: October 1941 to September 1943. C. Kirk. 85: 58–67, Aug. 1945.

Venereal disease control in East Africa command. F. Ray Bettley. 85: 109–116, Sept. 1945.

J. ROY. NAV. M. SERV., LONDON

Gonococcal conjunctivitis treated with penicillin. A. J. Evans. 31: 176–177, July 1945.

J. TROP. MED. & HYG., LONDON

Lymphogranuloma venereum as a possible cause of arteriosclerosis and other arterial conditions. Waldemar E. Coutts and Manuel Davila. 48: 46–50, June–July 1945.

LANCET, LONDON

A case of syphilitic wrist-drop. Neill Hobhouse. 2: 141, Aug. 4, 1945.

Polyarteritis nodosa developing during antisyphilitic treatment. H. G. Miller and M. G. Nelson. 2: 200–202, Aug. 18, 1945.

Penicillin for gonorrhea. Annotation. 2: 212–213, Aug. 18, 1945.

Penicillin in experimental psittacosis of mice. S. P. Bedson and H. B. May. 2: 394–396, Sept. 29, 1945.

Penicillin treatment of gonorrhea. K. B. Wood. 2: 417, Sept. 29, 1945.

Congenital syphilis in an infant treated with penicillin. Alex Comfort. 2: 432–433, Oct. 6, 1945.

M. ANN. DISTRICT OF COLUMBIA, WASHINGTON

*Out-patient penicillin therapy of gonorrhea. Ben D. Chinn and Frederick G. Gillick. 14: 407–408, 439, Sept. 1945.

Strengthening venereal-disease control in Washington. Ray H. Everett. 14: 473–474, Oct. 1945.

Out-patient penicillin therapy of gonorrhea.—The authors report on the highly satisfactory treatment of 776 cases of gonorrhea (473 males and 303 females) by means of outpatient penicillin therapy.

The diagnosis in each case was confirmed bacteriologically by culture methods, since smears are frequently negative in infected women and cannot be relied upon to determine success of treatment. In this report, treatment consisted of 200,000 O.u. of penicillin administered by means of 4 hourly injections of 50,000 units each. The drug was well tolerated in all cases, and a cure rate of 91.2 percent was obtained in patients receiving one course of treatment. Of the 52 patients who were considered treatment failures, 19 were retreated with a second course of 200,000 units. Seventeen of these responded successfully, bringing the over-all cure rate to 94.1 percent.

Blood levels of from 0.19 to 0.25 units per cubic centimeter of serum were maintained for at least 3 hours after treatment in the 4 patients whose blood levels were taken. These concentrations are considered sufficient for the cure of gonorrhea.

M. CLIN. NORTH AMERICA, PHILADELPHIA

Treatment of common dermatoses. John G. Downing. 29: 1095–1113, Sept. 1945.

M. OFFICER, LONDON

Methods of treatment with penicillin. May Ethel Florey. 74: 135–136, Oct. 27, 1945.

MISSISSIPPI VALLEY M. J., QUINCY

Massive arsenotherapy and penicillin treatment of syphilis. Arthur Wright Neilson. 67: 91–93, July 1945.

MOD. MED., MINNEAPOLIS

Recent advances in the treatment of cardiovascular diseases. Paul D. White, 12: 49–60, Aug. 1944.

NATURE, LONDON

Uses and limitation of penicillin. 156: 244–246, Aug. 25, 1945.

NOVA SCOTIA M. BULL., HALIFAX

Multiple contacts. 24: 286, Oct. 1945.

PROC. STAFF MEET., MAYO CLIN., ROCHESTER

Prolonged action of penicillin in mixtures of beeswax and peanut oil. D. R. Nichols and E. A. Haunz. 20: 403–407, Oct. 31, 1945.

Streptomycin: absorption, diffusion, excretion and toxicity. Dorothy H. Heilman, F. R. Heilman, H. C. Hinshaw, D. R. Nichols and W. E. Herrell. 20: 408–410, Oct. 31, 1945.

PUB. HEALTH NEWS, TRENTON

The new venereal disease laws. 27: 342–344, Oct. 1945.

PUB. HEALTH NURSING, NEW YORK

Personal liberty and venereal disease. 37: 432, Aug. 1945.

ROCKY MOUNTAIN M. J., DENVER

Office procedure—penicillin treatment for gonorrhea in 4 hours—male or female. Ward L. Chadwick. 42: 851, Nov. 1945.

SAN FRANCISCO CITY CLINIC REPORT, SAN FRANCISCO

An experiment in the psychiatric treatment of promiscuous girls. A psychiatric study under the auspices of the Venereal Disease Division of the United States Public Health Service, the California State Department of Public Health and the San Francisco Department of Public Health, January 1943 to June 1944. Ernest G. Lion, Helen M. Jambor, Hazle G. Corrigan, and Katherine P. Bradway. 68 pp. 1945.

SCIENCE, NEW YORK

*The effect of penicillin in experimental rabbit syphilis. George W. Raiziss. 102: 329–330, Sept. 28, 1945.

The effect of penicillin in experimental rabbit syphilis.—This paper offers the final results obtained by testing the popliteal lymph nodes 100 to 115 days after the testicles of penicillin-treated rabbits (in a previous experiment) became normal.

One syphilitic rabbit received, intramuscularly, 2,500 O. u. of penicillin in aqueous solution twice a day for 8 days; the other 2 were each treated by intramuscular injections of 5,000 O. u. of penicillin in oil suspension once a day for 8 days, all receiving a total of 40,000 O. u. per kilogram of body weight. Three months after the testicles became normal, the popliteal lymph nodes were removed and tested for spirochetes by means of their intratesticular transfer into a healthy rabbit, which was then observed for 3 months to note evidence of infection. The popliteal lymph node transfers gave negative results, or cures, in all 3 rabbits.

Additional experiments consisted of the treatment, also for 8 days, with penicillin sodium of 3 syphilitic rabbits. One was given a total of 79,200 units per kilogram in aqueous solution, an amount approximately twice that given the first animal treated with aqueous solution. Cure was effected in this case, the lesions in the second animal being freed of spirochetes and healing in a shorter time with the double dosage. Two more syphilitic rabbits receiving a total of 80,000 units per kilogram of penicillin sodium in oil suspension showed more rapid healing of lesions with the double dosage and were cured.

Syphilitic rabbits, therefore, which received 40,000 O. u. per kilogram of body weight, whether in aqueous solution or in oil suspension, were cured. Translated into a treatment schedule for a patient weighing 60 kilograms, the total dose should be 2,400,000 units. Since doubling of the dosage produced such marked rapidity of healing in rabbits, however, it is recommended that a patient weighing 60 kilograms be given a total of 4,800,000 units in an 8-day period.

SOUTH AFRICAN M. J., NAIROBI

Kahns at school ages in Africa. The serological state of Africans at various school ages as discovered in a small survey using the qualitative Kahn test. W. A. Young. 22: 74–79, Mar. 1945.

THERAP. NOTES, DETROIT

Some indications for theelin therapy. Gonorrheal vaginitis. pp. 233–237, Nov. 1945.

Erratum

The article entitled "Syphilis Among Civilians During World War II, January 1, 1942, through June 30, 1943," by Lida J. Usilton, which appeared in the December 1945 issue of this journal contained an error. On page 266, the second line in the paragraph at the bottom of the first column should read "northeastern" instead of "northwestern."

Cases of Syphilis and Gonorrhea Reported for the First Time in States, Territories, and Possessions for the First 10 Months of 1945

Area	Syphilis										Gonorrhea	
	Total [1]		Primary and secondary		Early latent		Late and late latent		Congenital			
	Oct.	Jan.–Oct.	Oct.	Jan.–Oct.	Oct.	Jan.–Oct.	Oct.	Jan.–Oct.	Oct.	Jan.–Oct.	Oct.	Jan.–Oct.
Alabama	*307	8,790	*72	1,343	*25	2,065	*37	2,087	*6	260	*359	7,565
Arizona	162	1,292	52	349	64	387	39	476	7	79	159	1,045
Arkansas	1,120	13,286	330	3,856	338	4,615	364	3,912	66	536	545	6,333
California	2,488	25,733	566	4,571	638	6,666	1,154	12,663	67	671	3,026	23,416
Colorado	220	1,991	77	576	62	491	76	852	5	72	179	1,856
Connecticut	179	1,994	36	238	29	512	81	945	11	54	113	1,159
Delaware	59	335	15	94	13	105	7	77	0	21	16	133
Dist. of Columbia	248	2,989	63	675	97	989	72	1,137	5	83	606	5,246
Florida	1,313	14,026	212	1,991	570	5,812	358	4,696	44	421	1,368	11,746
Georgia [4]	------	------	------	------	------	------	------	------	------	------	------	------
Idaho	133	689	21	120	41	187	57	301	2	26	56	484
Illinois	1,819	18,047	407	3,277	459	4,369	905	9,897	48	504	2,746	20,719
Indiana	516	5,094	117	1,001	40	567	206	1,760	18	136	362	2,251
Iowa	104	1,104	33	260	30	328	28	401	3	44	225	1,871
Kansas	166	1,883	42	389	36	402	77	1,005	11	87	266	1,904
Kentucky	530	4,176	188	1,385	132	1,044	125	1,169	23	200	869	5,266
Louisiana	1,113	9,539	242	2,137	356	2,760	217	2,212	45	519	742	8,021
Maine	54	557	35	176	7	94	11	225	1	29	122	868
Maryland	843	9,444	193	1,520	246	2,153	207	2,485	12	172	598	4,695
Massachusetts	402	3,206	127	725	0	0	250	2,306	25	175	578	3,491
Michigan	1,276	13,379	246	2,683	340	3,829	487	4,953	24	294	961	9,743
Minnesota	105	1,063	29	187	17	171	47	617	5	37	250	1,982
Mississippi	1,822	17,024	579	5,338	646	5,760	524	5,090	73	766	2,857	24,331
Missouri	1,442	7,867	370	1,948	475	2,391	525	2,969	33	285	1,426	6,871
Montana	19	340	3	67	1	29	8	99	0	22	11	246
Nebraska	67	884	11	177	13	240	20	389	1	28	33	948
Nevada	35	349	9	83	0	11	22	141	1	5	33	550
New Hampshire	22	312	3	49	2	40	15	195	2	21	48	312
New Jersey	783	7,591	150	1,067	254	2,321	346	3,866	26	259	553	4,030
New Mexico	168	1,637	29	307	36	463	92	754	11	113	132	1,298
New York	2,628	25,359	615	5,299	622	5,779	1,310	13,400	63	711	[2]1,625	[2]14,093
North Carolina	669	6,730	245	2,350	244	2,474	147	1,557	33	306	993	8,078
North Dakota	14	180	3	33	7	35	2	64	2	11	68	476
Ohio	1,465	17,446	390	3,941	411	4,641	585	7,884	60	578	638	4,943
Oklahoma	497	5,632	57	920	108	1,551	147	1,634	28	270	707	7,548
Oregon	187	1,437	28	353	23	194	109	779	4	48	232	2,052
Pennsylvania	857	8,691	177	1,662	381	3,471	250	2,882	39	404	[3] 292	[3] 2,034
Rhode Island	96	845	18	183	9	73	54	475	2	25	21	329
South Carolina	661	5,981	182	1,926	260	1,873	129	1,603	56	387	736	5,980
South Dakota	36	345	9	74	5	76	20	171	2	20	61	464
Tennessee	879	9,900	207	2,091	347	4,096	308	3,408	12	267	1,316	13,242
Texas	934	10,987	229	2,963	403	4,783	222	2,391	39	484	1,413	13,569
Utah	42	390	11	86	6	93	24	204	1	14	44	481
Vermont	8	118	5	17	0	26	1	49	2	12	45	292
Virginia	665	8,087	229	2,474	262	3,153	154	2,076	17	328	763	6,207
Washington	229	2,801	45	546	71	789	92	1,162	8	73	436	4,436
West Virginia	340	3,178	180	1,521	82	770	70	728	8	103	792	4,791
Wisconsin	214	1,785	65	366	0	17	147	1,386	2	16	161	1,045
Wyoming	19	316	2	69	5	98	5	95	0	2	19	180
Total U. S.	27,955	284,829	6,954	63,463	8,213	82,793	10,133	109,627	953	9,978	29,601	248,620
Alaska	6	118	3	34	0	19	3	16	0	1	32	376
Canal Zone [4]	------	------	------	------	------	------	------	------	------	------	------	------
Hawaii	60	423	5	23	14	51	39	316	2	29	37	308
Puerto Rico [4]	------	------	------	------	------	------	------	------	------	------	------	------
Virgin Islands	8	145	0	32	3	82	5	28	0	3	17	105
Total U. S. and Possessions	28,029	285,515	6,962	63,552	8,230	82,945	10,180	109,987	955	10,011	29,687	249,904

*Data incomplete pending readjustment of Birmingham & Jeff. Co. morbidity reports.

[1] Includes "not stated."

[2] New York City only.

[3] Philadelphia and Pittsburgh only.

[4] No report for October.

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FEDERAL SECURITY AGENCY

UNITED STATES PUBLIC HEALTH SERVICE

THOMAS PARRAN, *Surgeon General*

Editor: J. R. HELLER, Jr., *Medical Director*
Chief, Venereal Disease Division

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Editorial

In his address before the International Association of Chiefs of Police, Gillis points out that "one of the most difficult problems in venereal disease control is the formulation and enforcement of laws and regulations which will afford adequate protection of public health and order and at the same time safeguard the principles of individual civil liberty." The loose legal framework now in use in many States for control of the venereal diseases became apparent under the pressure of wartime needs. As the laws stand, all too often the individual is not sufficiently protected. It is clear that there is great need for reconsideration and restatement.

There are several factors which tend to complicate an already difficult task. One is the fact that existing laws and regulations are for the most part merely adaptations of those designed for the control of other infectious diseases. Since each disease presents unique problems, this procedure could not be expected to give the best possible results. Another difficulty, brought out in Gillis' speech, has been the confusion between the moral and medical aspects of the problem. The broad powers given to the health departments for the protection of the public health must not be diverted to the police function of protection of the public morals. Nor, on the other hand, must health deparments in guarding the public against venereal disease depend upon law enforcement machinery.

The Public Health Service is deeply concerned in working out a solution to this problem. In every statement of policy it has insisted that coercive methods be used only as a last resort in the very rare patient who is infectious and proves refractory to all other persuasion. It may seem difficult, perhaps even hopeless, to use persuasion and education for many of the individuals met with, but experience has indicated that in all but a very few cases it can be done, and that when done, it has a far greater and more lasting effect on the better control of the venereal diseases. While there may have been some excuse for more drastic measures during the war, the Public Health Service sees no reason for modifying its original policies for a permanent program. It is earnestly hoped that all workers in this field will unite in seeking to avoid resort to the seemingly easier methods of control by force. In the long run, coercion will inevitably turn out to be less effective than persuasion and will weaken the entire structure of public health organization.

Cooperation of Health Officers and Police Departments

Eugene A. Gillis, Senior Surgeon [1]
United States Public Health Service

It is a great pleasure for a health officer to address a group of law enforcement officers, for health departments and police departments have purposes that are in many respects similar and parallel. You in your work of protecting the community against crime, and we in our job of protecting the community against disease, have in common the methods and goals of prevention.

The crimes that are not committed because of efficient crime prevention work by police, and the diseases that are not contracted because of the efforts of the health department, are of greater value to the community than the arrests made and the prescriptions written.

During the difficult times accompanying war, both the police and health workers of the Nation have been outstandingly successful in their respective tasks of preventing crime and preventing disease. In many instances the work of the police department has contributed directly to the success of efforts of the health officer. An example of this is the repression of organized commercialized prostitution, which represents not only law violation but also the means whereby a small but important portion of new venereal disease infections are spread.

During the war, also, important progress has been made by health departments and medical science in methods for preventing venereal disease among the entire population.

Today, as in the past, the most practical means of preventing the spread of venereal disease is to eliminate the sources of infection. This can be accomplished only by finding individuals infected with syphilis or gonorrhea and treating them before they have had an opportunity to infect others.

Progress in the treatment of gonorrhea has gone so far that patients can now be cured with treatment administered in hours or minutes by the injection of a single dose of penicillin in an oil-wax mixture, or by 4 injections of penicillin in water, over a period of 3 hours. The few cases that may not be cured on the first course of penicillin therapy can be cured by second, or if necessary, third courses. This great advance means that practically every physician in the country now has a weapon with which he can enter the fight against gonorrhea.

The treatment of syphilis can be completed in a fraction of the time that was required by the best methods available a few years ago. A majority of infectious cases of syphilis now can be rendered noninfectious within a period of from 9 days to, at most, a few weeks by intensive therapy administered in hospitals. During the war, as most of you know, a Nation-wide chain of special hospitals, or rapid treatment centers, was established to render noninfectious as quickly as possible by intensive therapy large numbers of persons infected with syphilis. The success of these rapid treatment centers and the methods of therapy applied in them proved so satisfactory that these centers have taken an important place in the normal long-range venereal disease control programs of most of the States.

There are now available in rapid treatment centers, or in special beds rented in general hospitals, facilities to provide intensive treatment for all cases of infectious syphilis reported each year.

Now that the emergency is ended, health departments and police departments can very appropriately consider how both can work together most effectively in those activities relating to venereal disease wherein their respective responsibilities meet.

Based on remarks given before the annual meeting of the International Association of Chiefs of Police, Miami, Fla., Dec. 13, 1945.

[1] Assistant Chief, Venereal Disease Division.

One of the most difficult problems in venereal disease control—and one with which both the police and health officers are concerned—is the formulation and enforcement of laws and regulations which will afford adequate protection of public health and order, and at the same time safeguard the principles of individual civil liberty. The public gives to its officials and agencies authority to abrogate civil liberties only on the assumption that this power will be used with wisdom and fairness. Time and again it has been demonstrated that such power will be withdrawn by the public when it is no longer needed, or when it has been misused.

To protect the armed services and the public against venereal disease during World War II, it was often necessary for health authorities to rely upon laws designed to protect public morals rather than the public health. It was also necessary at times to apply "reasonable suspicion of infection" clauses of municipal or State health laws and regulations in a somewhat arbitrary fashion. If such policies were permitted to become the rule rather than the exception in postwar years, they likely would prove detrimental rather than helpful to the cause of venereal disease control and detrimental to the cause of law enforcement in general.

As stated by the report of the Section on Education and Community Action of the National Conference on Postwar Venereal Disease Control (Supplement No. 20 to The Journal of Venereal Disease Information. In press.):

"The success of police action in the repression of prostitution, and the apprehension and detention of people connected with prostitution, sexual promiscuity, and related misdemeanors depends largely upon the correct definition of the function of law enforcement, and the extent to which workable and sound relationships are established with the health and welfare agencies of the community."

Further, as stated in the committee's report, "* * * it must be reiterated continually that law enforcement officers can work only within the framework of the criminal law, as differentiated from protective health and social welfare laws, rules, and regulations. Law enforcement officers should not arrest, hold or detain women and girls simply because they 'suspect them of having a venereal disease.' Nor should law enforcement officers be used as 'contact-tracers' by the health department. Only after the health department has exhausted its resources for locating or interviewing persons suspected of being infected with venereal disease should it furnish the law enforcement officer with a health warrant or quarantine order so that the person may be detained for examination. Under our legal code, it is no crime to be infected or suspected of being infected with a venereal disease; . . ." With respect to persons arrested on morals charges, the committee states, "The presence or absence of venereal disease is not a factor to be considered in the determination of innocence or guilt by the court."

Obviously, there is no absolute identity between immorality and venereal disease infection. In most States, conviction of prostitution is deemed reasonable grounds for suspicion of infection, and therefore for diagnosis and treatment, with quarantine as the alternative for refusal to submit to diagnosis or treatment. Diagnosis and treatment imposed by the threat of quarantine for persons merely suspected of prostitution is another matter. It would be a disservice to the principles of civil liberty, of law enforcement, and of public health to permit further strengthening of the wartime tendency to assume venereal disease infection in persons arrested on morals charges, before innocence or guilt has been established by the courts.

Another tendency to be avoided is the wartime expedient of making promiscuity synonomous with prostitution and therefore subject to antiprostitution methods for venereal disease control purposes. By tortuous but inevitable logic, suspicion of promiscuity then becomes reasonable ground for police action and forced diagnosis.

Health officials are in no position officially to oppose this confusion of terms if it is followed for the protection of public morals. But if the primary objective is venereal disease control, they should vigorously protest. More important, health officers should be extremely careful in considering the invocation of powers inherent in their offices, particularly in contact investigations, in order to insure against arbitrary denial of civil liberty.

The reasons for the concern of health officers with this subject are obvious. If official policy is permitted to reestablish in the public mind the notion that having a venereal disease is a crime and absolute proof of immorality, syphilis and gonorrhea will go back into hiding. Voluntary reporting for diagnosis, our greatest hope for early case finding, will virtually disappear. The already difficult task of obtaining names of contacts will become doubly difficult. Rapid treatment centers will tend to resemble prison camps rather than hospitals. Ethical physicians in private practice will lose their newfound interest in venereal disease diagnosis and treatment. Quackery and self-treatment may again become major deterrents to the control of syphilis and gonorrhea.

When Congress first appropriated large sums for national venereal disease control in 1938, it neither expressed nor implied that such control should be effected by means of the police powers of States and municipalities. The Public Health Service has always sponsored the persuasive method of case finding and case holding. Few police departments have desired to add venereal disease case work to their responsibilities.

Police officials are as alert to the differences between crime and disease as are health officers. This is evidenced by views expressed in the manual on Techniques of Law Enforcement Against Prostitution compiled by the National Advisory Police Committee to the Federal Security Administrator, and approved by the International Association of Chiefs of Police and the National Sheriffs' Association:

"Arrest of prostitutes or detention of extremely promiscuous women should be based upon violation or suspected violation of specific ordinances or statutes, and not as suspect of having a venereal disease." The committee points out, "There is no legal charge of this kind and without visible lesions not even a physician could, at sight, suspect a man or woman of being infected. A police officer testifying to his suspicion of the accused being venereally infected would be laughed out of court."

The committee further states that if a man or woman is infected, that fact should have no bearing on the type of charge to be filed against the defendant unless it could be proved that the defendant was a prostitute or patron who, knowing he was infected, had relations with an uninfected person.

The Police Advisory Committee further recognizes that the effort to educate the public regarding the voluntary application for treatment of venereal disease could be retarded seriously if the public should identify health department venereal disease control work with that of the law enforcement branch of the government.

The committee reminds local health officers that it is their responsibility, not that of the police department, to arrange for persons named as contacts of venereal disease patients to appear at the health clinic for medical examination.

It is apparent that the most carefully thought out ideas of leaders in both law enforcement and public health are in full agreement upon the basic principles which we have been discussing. It is entirely reasonable to believe that police and health officers alike will continue to work in their individual communities toward correction of whatever departures from these principles may have developed in the stress of the wartime emergency.

In addition, there is an extremely large area in which police and health officers can work together to prevent both venereal disease and crime by correcting many of the conditions which lead to violations of both civil laws and the laws of good health.

Preliminary Report Evaluating the Worth of Obtaining Names of Suspected Contacts During a Regular Contact Interview

W. D. Hazlehurst, Surgeon,[1] C. P. Stevick, M. D.,[2] and
Harold A. Kahn, Assistant Sanitarian (R)[3]

It is the purpose of this paper to report the results of investigation of 599 persons reported as suspected contacts by patients with a diagnosed venereal disease infection, but who, so far as is known, were not directly exposed to the patient giving their name.

During a routine contact interview it is usually the practice to undertake two objectives: (1) the general education of the patient regarding the disease, its prognosis, necessary treatment, and public health aspects and (2) following directly from the education regarding public health aspects, the attempt to obtain the names of persons who may be infected through contact with the patient being interviewed.

It was conceived by Dr. Howard Steiger at the Rapid Treatment Center in Charlotte, N. C., that in some instances the interviewing nurse or doctor could go beyond these two objectives and, in addition to direct contacts, obtain from the patient the names of persons whom he or she thinks may be infected for reasons other than direct contact with the patient. This latter procedure was put into effect at the Charlotte Rapid Treatment Center in North Carolina. With the inauguration of the Multiple Epidemiologic Report form for reporting contact information, names obtained by the interviewer that were not direct contacts were arbitrarily listed on the forms as contacts to "no informant." This was done simply to keep in line the ratios tabulated between clinic admissions and contacts obtained. The omission of an informant's number prevented such cases from being tabulated as contacts to the credit of any particular clinic. However, in the evaluation of the over-all results of contact investigation these suspected contacts were not segregated in any manner but were included with direct contacts in all epidemiologic tabulations.

Several months ago, in order to obtain at least a partial answer to the many questions that had arisen regarding the value of obtaining these additional data during the contact interview, it was decided to eliminate these reports from all routine tabulations prepared for contact investigation and to assign to them a distinguishing code so that they might be distinctly processed and evaluated.

In accordance with the above, the following procedure was adopted:

1. Whenever it was the existing practice to obtain suspect data on any of the three categories listed below, the interviewer was instructed to identify these three types of reports with the entry "suspected contact":[4] (a) Persons reported by an infected patient as promiscuous, although the informant denies any sexual exposure to the individual named. (b) Persons whom the informant believes were exposed not to himself or herself but to a direct contact already named by the informant. (Obviously, these cases are almost always the same sex as the informant.) (c) Persons who, with the informant, have participated in hotel parties, brothel escapades, and so forth, although direct exposure between the two presumably did not take place.

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[1] U. S. Public Health Service, Venereal Disease Consultant, N. C. State Board of Health.

[2] Acting Director, Division of Epidemiology, N. C. State Board of Health.

[3] U. S. Public Health Service—Assigned to N. C. State Board of Health.

[4] The expression "suspected contact" was adopted for lack of a better term which might more clearly describe the category of individuals included. Of course, these persons are not "contacts" in the ordinary sense of the word.

2. County health officers were advised as to the type of case which would be identified as "suspected contact" and were cautioned against the use of legal action in bringing such persons to the clinic for examination since, obviously, there might be substantial disbelief on the part of the courts as to whether, in the case of a person so named, the health officer had grounds for reasonable suspicion. The local health officers were notified that these suspects should be followed up by all practical means, with the exception noted above.

3. The tabulating unit assigned a special code to all reports marked "suspected contact" and held these cards apart from all others in order that the group might be evaluated.

Table 1 shows for both suspected contacts and regular contacts the results of investigation by number and by percentage of the total cases reported. The high degree of similarity in regard to the percentage findings must not be immediately accepted as proving the equal fruitfulness of the two groups. Experience in North Carolina has demonstrated that favorable outcomes of contact investigations are sometimes reported more than 3 months after the investigation has begun. This is primarily due to the State-wide policy of not considering direct syphilis contacts as not infected without repeated examination over a 90-day period to allow for the incubation period. Sufficient time has not yet elapsed to determine whether the local health officers are following the same policy with regard to suspected contacts. If they are not, the later reports on suspected contacts may show fewer additional favorable outcomes than those for direct contacts and hence the 2 groups may have appreciably different results. Therefore the number of cases brought to treatment by interviewing for suspected contacts, while substantial in itself, may not be comparable to the number discovered by obtaining direct contacts.

In the evaluation of any case-finding device the prime factor is, of course, the number of new infections discovered. Table 1 shows that at least 9.0 percent of suspected contacts are brought to treatment as compared with 9.9 percent for contacts. Table 2, which includes the disease and stage of suspected contacts brought to treatment, indicates that the majority of syphilis infections discovered are in the early stages. Of 24 syphilis cases brought to treatment, 11 were primary or secondary, 7 were early latent, and 6 were not specified.

TABLE 1.—*General comparison of results of investigation† for contacts and suspected contacts*

Type of contact	Total number reported	Number of dispositions received	Percent dispositions received	Number located	Percent located of total reported	Number infected	Percent infected of total reported	Number brought to treatment	Percent brought to treatment of total reported	Percent brought to treatment of total located
Suspected contacts*	599	350	58.4	260	43.4	119	19.9	54	9.0	20.8
Contacts§	2,325	1,459	62.8	990	42.6	561	24.1	231	9.9	23.3

†All cases have had between 60 and 90 days for investigation.
*Reported March–June 1945.
§Reported May 1945 by civilian patients.

It was not anticipated that the infections discovered in suspected contacts brought to treatment would be very closely related to the infections diagnosed in the patient supplying the information. Table 2 reflects a high degree of association between the disease of the informant and the person he reports as a suspect but not exposed to himself. Of 24 cases of syphilis brought to treatment, all but 2 were named by syphilis patients. Of 38 cases of gonorrhea brought to treatment, all but 7 were named by gonorrhea patients.

We might have been more inclined to suppose that this procedure brought us into a promiscuous group which would reveal new cases, simply on the basis of high incidence of venereal disease within the group defined; however, only 9 out of 62 were infected with a disease not diagnosed in the informant.[5]

TABLE 2.—*Results of investigation for contacts and suspected contacts, showing the diagnosis of cases brought to treatment, by disease and stage of the informant#*

[Cases reported by informants with late syphilis, chancroid, or granuloma inguinale are not included]

	Disease and stage of informant	Number of cases reported	Percent not infected	Percent brought to treatment with the disease of informant	Percent already under treatment	Percent not located	Percent no disposition returned	Total number brought to treatment by disease and stage			
								Primary and secondary syphilis	Early latent syphilis	Other and unknown syphilis	Gonorrhea
Suspected contacts†	Primary and secondary syphilis	171	21.0	9.4	19.3	15.2	35.1	9	5	2	5
	Early latent syphilis	134	26.9	4.5	6.7	11.2	50.7	2	2	2	2
	Gonorrhea	238	19.3	13.0	8.8	16.0	42.9	--------	-------	2	31
	Total	*543	21.7	9.8	11.6	14.4	42.4	11	7	6	38
Contacts‡	Primary and secondary syphilis	636	11.5	8.7	19.0	18.7	42.1	29	21	5	5
	Early latent syphilis	512	17.6	6.6	16.8	17.8	41.2	4	22	8	2
	Gonorrhea	936	23.5	13.4	9.2	22.7	31.2	--------	-------	8	125
	Total	**2,084	18.4	10.3	14.0	20.3	37.0	33	43	21	132

#All cases have had between 60 and 90 days for investigation.
†Reported March–June, 1945.
‡Reported May 1945 by civilian patients.
*56 suspected contacts reported by informants with late syphilis or other venereal disease accounts for total of 599 in table 1.
**241 contacts reported by informants with late syphilis or other venereal disease accounts for total of 2,325 in table 1.

This high degree of association of infections may mean that a large proportion of these cases are in reality straightforward contacts which the informant does not wish to conceal altogether, possibly to avail his partner of medical care if needed, but which he does wish to deny as directly related to himself. Another explanation might be that the investigating clinic looked only for the disease specified for the informant when the contact was examined.

An additional parallel between the results of investigation for suspected contacts and for direct contacts is shown in table 2. For informants with primary or secondary syphilis, 9.4 percent of the persons reported as suspected contacts were brought to treatment compared with 8.7 percent of the persons named as direct contacts. When the informant had early latent syphilis these percentages were 4.5 and 6.6, respectively. For informants with gonorrhea, the comparable percentages were 13.0 and 13.4. This relationship is of interest as possibly being indicative of essentially similar groups. A determination of the possibility that direct contacts are included in the suspected contact group would be dependent on tabulations in which the sex of the informant and the sex of the suspect were both known. (Obviously, only a very small proportion of direct contacts would be included in the group having the same sex for informant and suspect.) This preliminary study utilized the standard North Carolina Epidemiologic Report form and no entry was made regarding the sex of the informant.

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[5] When all cases of infected suspected contacts are considered, including those in which the informant had late syphilis or other venereal disease, or the suspected contact was already under treatment, 128 suspected contacts were found to be infected. Only 9 of these were infected with a disease not present in the informant.

The routine use of suspected contact reporting would naturally raise medicolegal questions, chief of which would be: "Does this method constitute an unjustified violation of personal rights?" While not conceding that the answer to that question is an affirmative one, the authors believe that freedom from complications could possibly be avoided in actual practice if the follow-up were not vigorously forced upon unwilling subjects. As in routine contact investigations, the approach appealing to the individual's interest in his own health, exclusive of legal considerations, should be successful in bringing many suspects in for examination without the use of coercive measures. Certainly, if case finding by means of suspected contacts rests on a legal basis only, it cannot be very successful.

Of the total number of suspected contacts located, the percentage brought to treatment is so appreciable (21 percent) that at the very least this method should be further studied and evaluated. If additional studies tend to confirm this preliminary report, then this method may be profitably added to the case-finding devices employed by local health departments.

SUMMARY

1. A preliminary tabulation has been made showing the results of investigation of 599 suspected contacts reported in North Carolina during March–June 1945. These suspected contacts were persons who had been named by clinic patients as: (a) Promiscuous, although the patient denied any sexual exposure to the person named; (b) exposed to a direct contact already named by the patient, but not directly exposed to the informant himself; (c) participants in hotel parties, brothel escapades, and so forth, of which the patient was a member, although direct exposure to the suspected contact is denied.

2. The percentage brought to treatment of the suspected contacts reported was 9.0 in comparison with 9.9 of direct contacts. A large proportion of the new infections discovered by this means of interviewing were early cases. Of 24 such syphilis cases brought to treatment, 11 were primary or secondary, 7 were early latent, 6 were not specified.

3. There appears to be a strong relationship between the disease of the informant and the disease of the suspected contact named. Of 62 suspected contacts found infected, only 9 were infected with a disease not diagnosed in the informant.

4. Further studies of this method are recommended so that its efficiency and value as a case-finding instrument can be accurately determined.

ADDENDUM

The following communication was received from the authors after the above article was set in type and ready for publication:

"Further experience with this case-finding method has revealed difficulties which make it a less useful procedure in this State than was indicated by earlier practice. It was found, for example, that patients would often name their enemies when asked about 'suspected contacts.' In numerous instances this placed the investigator of the local health department in embarrassing situations. Consequently this method was largely discontinued at the Charlotte Rapid Treatment Center.

"It is felt that the method may be useful, however, if the interviewer does the investigating, or if there is very close working relationship between the interviewer and the investigator. In view of this and other difficulties enumerated in the report, the routine employment of this procedure is not recommended for general use in health departments and rapid treatment centers. However, a health department with a closely integrated and well trained staff might find it of value."

Oral and Parenteral Use of Aluminum Penicillin Mixtures in the Treatment of Gonorrhea

S. W. Bohls, M. D.,[1] E. B. M. Cook, M. A.,[2] and R. T. Potter, M. D., M. P. H.[3]

The antibacterial action of penicillin on Neisseria gonorrhoeae was pointed out by Fleming (*1*) in his earlier publications on this antibiotic. Hobby, Meyer, and Chaffee (*2*) in 1942 placed the gonococcus high on their list of organisms susceptible to penicillin, but it was not until early in 1943 that Herrell, Cook, and Thompson (*3*), and Mahoney, Ferguson, Buchholtz, and Van Slyke (*4*) reported on the clinical use of penicillin in gonorrhea cases. Herrell and his coworkers used the intravenous drip method while Mahoney and his group used intramuscular injections. Early reports from the Committee on Chemotherapeutics and Other Agents of the National Research Council (*5*) further confirmed the good results in the treatment of gonorrhea with penicillin, and since that time the work of numerous groups on thousands of cases has established penicillin as a specific therapeutic agent for this disease.

The problem resolved itself into a matter only of adequate dosage and administration of the drug for gonorrhea and its complications. From even the earlier reports it was evident that adequate blood levels must be maintained for a requisite number of hours to obtain cures. The dosage and treatment interval had to be carefully adjusted to obtain this therapeutic interval. The most commonly used treatment schedules for gonorrhea at the present time are 150,000 to 200,000 units of sodium penicillin given intramuscularly in 3 injections at 2- to 3-hour intervals. The penicillin is dissolved in saline or distilled water and the injections are usually made in the gluteal or deltoid muscles. Such schemes of treatment result in a high percentage of cure but still require several injections.

Various methods for prolonging the therapeutic action of injections of penicillin have been reported. Among the more successful methods have been the use of penicillin-oil emulsions by Raiziss (*6*), penicillin beeswax-oil mixtures by Romansky and Rittman (*7*), and the use of penicillin-gelatin mixtures in conjunction with a vasoconstrictor by Parkins, Wiley, Chandy, and Zintel (*8*). In common with other investigators of this problem of prolonging blood levels of penicillin, we were desirous of finding a method which, by delaying absorption and consequent maintenance of blood levels, could be used so that the treatment of gonorrhea as well as other infections could be carried out in the clinic or in the office of the physician. Three lines of investigation have been followed with this objective in mind.

1. It was found that delayed absorption resulting in more prolonged blood level time occurred when penicillin was combined with buffered aluminum potassium sulfate before injection. Bohls and Cook (*9*) reported that a single intramuscular injection of 50,000 units of aluminum penicillin mixture would maintain a therapeutic level for 6 to 9 hours. Various dosages of the aluminum penicillin mixture in single and double doses were em-

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The authors wish to acknowledge the assistance given by the following doctors who furnished advice and to the patients who helped to make the clinical study of the oral penicillin tablets possible: T. E. Dodd, M. D., M. P. H., Director, Division of Venereal Disease Control, State Health Department; R. J. Burkhart, M. D., Medical Officer in Charge, Riverview Hospital, San Antonio, Texas; W. S. Green, M. D., Chief, Division of Venereal Disease Control, San Antonio City Health Department; and M. M. Goldberg, M. D., Medical Officer in Charge, Riverside Hospital, Waco, Texas.

The authors also wish to acknowledge the cooperation of Hynson, Westcott, and Dunning, Inc., Baltimore, Md., who prepared and furnished the oral penicillin tablets for this study.

[1] Director, Bureau of Laboratories, Texas State Department of Health

[2] Senior Immunologist, Biologics Division, Bureau of Laboratories

[3] Passed Assistant Surgeon, U. S. Public Health Service, Field Consultant, Division of Venereal Disease Control.

ployed on cases of gonorrhea. The penicillin blood levels obtained in this series of patients are presented in table 1.

2. A second line of approach toward prolonging blood levels of penicillin was a combination of delayed absorption with the aluminum penicillin mixture and renal blockage by means of oral administration of benzoic acid as reported by Bohls and Cook (*10*). Tables 2 and 3 present the results of this study on a series of patients. Various agents have been reported in studies on selective renal blocking of penicillin excretion by the kidneys. Rammelkamp and Bradley (*11*) used injections of diodrast; Beyer, Flippen, Verwey, and Woodward (*12*) used para-amino-hippuric acid; and Bronfenbrenner and Favour (*13*) used benzoic acid with intravenous and intramuscular injections of plain penicillin.

TABLE 1.—*Trial dosages of aluminum penicillin mixtures for intramuscular injection in the treatment of gonorrhea*

Patient	Dosage in units	Blood serum concentration of penicillin in units per milliliter					Result 24–48-hour culture
		3 hours	6 hours	9 hours	12 hours		
1	*300, 000	1. 0	0. 5	0. 03	0. 03		Negative.
2	*160, 000	------	. 25	. 125	0		Do.
3	*150, 000	1. 0	. 125	. 03	0		Do.
4	*100, 000	. 25	. 125	. 03	0		Do.
5	*75, 000	. 25	. 125	0	0		Do.
6	*50, 000	. 25	. 125	0	0		Do.
7	*25, 000	. 125	0	0	0		Do.
		Hours after first injection					
		9	12	15	18	33	
8	**200, 000	0. 125	1. 0	0. 125	0. 125	0. 06	Negative.
9	**150, 000	. 125	. 25	. 125	. 25	0	Do.
10	**100, 000	. 125	. 25	. 125	. 03	0	Do.
11	**75, 000	. 125	. 25	. 125	. 03	0	Do.
12	**50, 000	. 25	. 125	. 125	. 125	0	Do.
13	**25, 000	0	. 125	. 03	0	0	Do.

*Single injection.
**Given in 2 injections, 9 hours apart.

These tables show that the addition of benzoic acid caused a definite prolongation in the penicillin blood level maintained. The combined action of the 2 agencies resulted in holding blood levels through 24 to 26 hours with 2 injections of 25,000 units each at 7- to 8-hour intervals and assayable levels through 28 hours with 1 injection of 50,000 units.

3. The third type of investigation carried out was with an oral penicillin preparation. Penicillin has been administered orally by many investigators with conflicting results. It has been established that penicillin can be absorbed from the gastro-intestinal tract, but that it is at least partially destroyed by the hydrochloric acid of the stomach (*14*). Penicillin has been administered orally alone (*15*), with buffers (*16*), in various vehicles (*17*), in various protective coatings (*18*), and in chemical combination (*19*). Therapeutic serum levels have been obtained and maintained by penicillin administered orally. To obtain therapeutic penicillin serum levels, however, it has been necessary to give larger oral doses than when the drug is given parenterally.

A number of methods have been investigated to prolong the period during which a therapeutic penicillin blood level can be maintained following a single oral dose. Investigations of methods for prolonging the penicillin blood levels have taken 2 directions: (1) diminishing the absorption rate of penicillin whether administered parenterally or orally and (2) retarding excretion.

It appears that a penicillin compound or combination which would maintain therapeutic penicillin serum levels for long periods following oral administration of a reasonable dosage would meet all requirements of an ideal chemotherapeutic agent. A stable buffered tablet for oral administration containing 25,000 units of penicillin with aluminum potassium sulfate and sodium benzoate as reported by Bohls, Cook, and Dodd (*20*), seems to be possibly such an agent. Their report, as yet unpublished, will deal with this product at some length. Our report will deal only with the clinical results obtained in the treatment of gonorrhea with such oral tablets.

TABLE 2.—*Blood serum concentrations of penicillin following two 25,000-unit injections plus oral benzoic acid*

Treatment	Patient No.	Blood serum concentrations of penicillin in units per milliliter				Diagnosis	Result 24–48-hour culture
		3½ hours	9½ hours	13½ hours	26½ hours		
GROUP A							
2 injections of aluminum penicillin, 25,000 units at 7-hour intervals.	1	0. 5	0. 5	0. 25	0. 125	Syphilis and gonorrhea.	Negative.*
	2	. 5	. 5	. 125	. 125	-----do--------	Do.
	3	. 5	. 5	. 25	. 07	-----do--------	Do.
Benzoic acid orally, 2.4 gm. 30 minutes prior to injection and 1.2 gm. q. 4 h. for 5 doses thereafter.	4	. 5	. 25	. 25	. 125	-----do--------	Do.
	5	. 5	. 25	. 125	. 07	Syphilis------	
	6	. 25	. 25	. 125	. 07	Syphilis and gonorrhea.	Do.
		4 hours	8 hours	12 hours	24 hours		
GROUP B							
2 injections of aluminum penicillin, 25,000 units at 8-hour intervals.	7	0. 5	0. 24	0. 5	0. 125	-----do--------	Do.
	8	. 125	. 25	. 5	. 125	-----do--------	Do.
	9	. 07	. 07	. 5	. 125	-----do--------	Do.
Benzoic acid orally, same as above.	10	. 07	. 125	. 25	. 125	-----do--------	Do.
	11	. 25	. 125	. 25	. 07	-----do--------	Do.

*All these patients showed clinical improvement 24 hours after treatment.

TABLE 3.—*Blood serum concentration of penicillin following one 50,000-unit injection plus oral benzoic acid*

Treatment	Patient No.	Blood serum concentrations of penicillin in units per milliliter				Diagnosis	Result 24–48-hour culture
		4 hours	8 hours	12 hours	24 hours		
One injection of 50,000 units of aluminum penicillin.	1	0. 125	0. 125	0. 125	0. 125	Syphilis------	
	2	. 25	. 125	. 5	. 125	Gonorrhea---	Negative.
Benzoic acid orally, 2.4 gm. 30 minutes prior to injection and 1.2 gm. q. 4 h. for 5 doses thereafter.	3	. 5	. 125	. 07	. 125	-----do-------	Do.
	4	. 5	. 5	. 125	. 07	Syphilis and gonorrhea.	Do.
	5	. 07	. 07	. 25	. 07	-----do-------	Do.
	6	. 25	. 125	. 125	. 125	Syphilis------	
		4 hours	11 hours	15 hours	28 hours		
	7	0. 5	0. 125	0. 07	0. 07	Gonorrhea---	Negative.*
	8	. 5	. 125	. 125	. 07	----- do-------	Positive.
	9	. 25	. 25	. 125	. 07	-----do-------	Negative.
	10	. 25	. 125	. 07	. 07	-----do-------	Negative.**

*Culture negative but discharge still present.
**Culture negative but discharge still present. Received 150,000 units of plain penicillin as further treatment.

Ten patients with culturally positive gonorrhea were treated with a single dose of 100,000 units of penicillin in such oral tablets. The patients in this group were cultured 48 hours after they were given the medication and at that time 4 were positive and 6 negative. The blood levels of this group at ½, 1, 1½, 4, 8, and 24 hours averaged 0.141, 0.327, 0.375, 0.146, 0.049, and 0.023 units per milliliter of blood serum, respectively. All the penicillin blood serum assays mentioned in this paper were done by one of us (Cook) by the tube method of Randall, Price, and Welch (*21*) and the plate cup method of Schmidt and Moyer (*22*). The results of this study are shown in table 4.

TABLE 4.—*Result of 100,000-unit oral penicillin therapy of gonorrhea*

Patient	Blood serum concentration of penicillin in units per milliliter (Hours after treatment)						Result 24–48-hour culture
	½	1	1 ½	4	8	24	
1	0. 07	0. 125	0. 125	0. 25	0. 07	0. 017	Negative.
2	. 25	. 5	. 5	. 25	. 017	. 035	Positive.
3	. 07	. 07	. 25	. 125	. 125	0	Negative.
4	. 07	. 5	. 5	. 25	. 017	0	Do.
5	. 035	. 25	. 5	. 07	. 035	0	Do.
6	. 125	. 25	. 25	0	. 017	. 035	Do.
7	. 125	. 5	. 5	. 25	0	0	Do.
8	. 5	. 5	. 5	. 125	. 125	. 07	Positive.
9	. 035	. 07	. 125	. 017	. 017	. 035	Do.
10	. 125	. 5	. 5	. 125	. 07	. 035	Do.
Average	. 141	. 327	. 375	. 146	. 049	. 023	

A second group of 15 similar patients was treated with a single dose of 200,000 units of penicillin also given in oral tablets. Table 5 shows the data on this group. These patients, like those in the first group treated with oral tablets, were cultured 48 hours after the medication was given, and at that time only 1 positive gonorrhea culture was found. The blood levels of this group at ½, 1, 1½, 4, 8, and 24 hours averaged 0.391, 0.277, 0.576, 0.381, 0.178, and 0.078 units per milliliter of blood serum, respectively.

Additional test of cure cultures were not made on these first 2 series of orally treated patients because of the shortage of bed space in the 2 rapid treatment centers where the trials were made. The failures were treated by routine injection of sodium penicillin and all responded satisfactorily.

Even though the results with the oral tablets were merely suggestive since we were unable to obtain sufficient follow-up cultures, they were encouraging. Accordingly, it was decided to give a further clinical trial with the oral tablets. For this purpose, a series of 49 patients was given 400,000 units of penicillin each in this form. All the patients in this group were women treated in the Quarantine Clinic of the San Antonio City Health Department. This clinic afforded an ideal location in which to evaluate the therapeutic effectiveness of the medication, for in it there was no possibility of reinfection during the period of investigation. The patients represented promiscuous women apprehended by the police on morals charges and consequently there was included in this group more than the average number of cases of chronic gonorrhea with complications. All cases admitted to the study had positive cultures for the gonococcus before treatment was instituted.

After having been diagnosed, 13 of the patients were given 100,000 units of penicillin in the tablet form at 7 to 8 a. m. and 3 to 4 p. m. on 2 successive days. Follow-up cultures as tests of cure were then taken at 48, 72, 96, and 120 hours later. Among this group there were 3 failures, giving a failure rate of 23.1 percent. Penicillin blood levels were not obtained on any of the 49 patients treated in the Quarantine Clinic.

Table 5.—*Result of 200,000-unit oral penicillin therapy of gonorrhea*

Patient	Blood serum concentration of penicillin in units per milliliter (Hours after treatment)						Result 48-hour culture
	½	1	1½	4	8	24	
1	0.25	0.5	0.25	0.5	0.07	0.5	Negative.
2	1.0	.125	.5	.25	.07	.5	Do.
3	1.0	.07	.5	.25	.017	.0	Do.
4	1.0	.017	.5	.07	.017	.035	Do.
5	.035	.125	1.0	.5	.017	.0	Do.
6	.5	.07	.07	.5	1.0	.0	Do.
7	1.0	.125	1.0	.25	1.0	.017	Do.
8	.07	.5	1.0	.5	.07	.07	Do.
9	.017	.5	.125	.5	.125	.017	Do.
10	.125	.125	1.0	1.0	.0	.035	Do.
11	.25	.5		.5	.125	.0	Do.
12	.125	.25	.5	.125	.07	.0	Do.
13	.125	.25	.125	.5	.035	.0	Do.
14	.25	.5	.5	.017	.025	.0	Do.
15	.125	.5	1.0	.25	.035	.0	Positive.
Average	.391	.277	.576	.381	.178	.078	

It was felt by the authors, on the basis of the work previously mentioned, that although penicillin blood levels were probably maintained over a relatively long period of time with the treatment scheme employed, the levels achieved were not sufficiently high to "cure" in all cases. The second portion of this group of patients was therefore given a similar total dosage of 400,000 units, but it received 200,000 units at approximately 7 to 8 a. m. and at 3 to 4 p. m. Thus they received 200,000 units initially followed by an additional 200,000 units 7 to 8 hours later. Thirty-six patients received this treatment and each had cultures taken as tests of cure at 48, 72, 96, and 120 hours. There was only 1 failure among the 36, giving a failure rate of only 2.8 percent.

No toxic reactions were experienced among the total 74 patients treated by the oral penicillin tablets in the 4 different schemes employed. The tablets each contained 25,000 units of penicillin. The preparation is quite stable and may be kept at room temperature, although storage under refrigeration is advised. We gave the tablets without relationship to meals or fluid intake. No effort was made to influence the physical activity of the patients while they were being treated.

This is a preliminary report and the 4 different oral schemes of therapy used were chosen arbitrarily and undoubtedly do not represent either the optimum amount of penicillin or the best time-dosage schedule. Further trial and experience are indicated before this desideratum can be reached. A more complete account of this oral aluminum penicillin benzoic acid research will be published in the article by Bohls, Cook, and Dodd, given as reference *(20)*. Three cases of primary and 1 of secondary syphilis were given oral penicillin tablets in experimental dosages and all showed rapid and definite clinical improvement.

SUMMARY

1. The use of an aluminum penicillin preparation by injection with and without the addition of oral benzoic acid is discussed in the treatment of gonorrhea. In this preparation, the aluminum causes delayed absorption and the benzoic acid inhibits renal excretion of the penicillin.

2. The use of an oral aluminum penicillin tablet containing sodium benzoate in the treatment of gonorrhea is discussed. A dose of 200,000 units of this preparation maintained a penicillin blood level for over 24 hours.

3. Two hundred thousand units of this oral penicillin given at 8 a. m. and repeated at 4 p. m. for a total dose of 400,000 units resulted in a "cure rate" of 97.2 percent in a series of female gonorrhea patients.

4. No untoward signs or symptoms were experienced with this type of penicillin therapy.

5. This is a preliminary report and the optimum time-dosage schedule of this type of oral penicillin therapy in the treatment of gonorrhea has not as yet been ascertained.

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CURRENT LITERATURE

NOTE: Abstracts of any article listed below are available on request. In addition, abstracts of all articles concerned with venereal diseases or related subjects which have been published in the better known journals both here and abroad during the past 20 years are in the files. These are open to workers in the field. An asterisk (*) before a title indicates that the article is abstracted below.

AM. J. PUB. HEALTH, NEW YORK

Utilizing medical social service in a venereal disease clinic. Margaret Lumpkin. 35: 1185–1190, Nov. 1945.

*Venereal disease epidemiology in wartime. J. R. Heller, Jr. 35: 1210–1216, Nov. 1945.

New social hygiene laws in 1945. 35: 1244 Nov. 1945.

Venereal disease epidemiology in wartime.—The author discusses the joint responsibility of military and civilian health authorities for venereal disease control in wartime. Selective Service System blood tests disclosed syphilis in more than 700,000 men, the majority of whom were placed under, or returned to treatment. A total civilian prevalence of three million cases was estimated on the basis of tests on the first two million selectees.

The necessity for cooperation between military and civilian health authorities is stressed, because the success of venereal disease control programs among military personnel depends upon effective case-finding and case-holding methods among civilians; while the civilian program, in turn, is furthered by efficient case finding and contact reporting by the Armed Forces. The development of more satisfactory reporting forms by the Army and Navy has improved contact reporting and follow-up by civilian agencies. Tabulations indicate that approximately half the persons located as contacts are found to be infected, and that about one-third of those located are brought to treatment for the first time as the result of the investigation.

One of the greatest problems facing the health officer is the holding of syphilis patients until rendered noninfectious. Lapsing from treatment became the rule under the old 40-week minimum schedule of 20 injections each of an arsenical and a heavy metal. Newer rapid types of treatment usually involve hospitalization. This is provided by 11 Federally-operated and 52 State-operated rapid treatment centers, and by an increasing number of general hospitals.

As to the postwar situation, the author points out that service men are not being released with venereal disease in an infectious stage, but are either rendered noninfectious or, in cases requiring further observation, referred to civilian health agencies for follow-up. He stresses the need for more efficient contact reporting and case finding, along with more general blood testing among industrial workers, applicants for insurance, and persons in clinics and hospitals.

ANN. SURG., PHILADELPHIA

Principles and practice of penicillin therapy in diseases of the nervous system. A. Earl Walker and Herbert C. Johnson. 122: 1125–1135, Dec. 1945.

ANN. TROP. MED., LIVERPOOL

A modification of the Ide test for syphilis and yaws. E. C. Smith, B. G. T. Elmes and J. A. Smith. 39: 94–97, Oct. 10, 1945.

ARCH. INT. MED., CHICAGO

Infectious diseases. Hobart A. Reimann. 76: 114–129, Aug. 1945.

ARCH. PHYS. MED., CHICAGO

*Artificial fever-chemotherapy. IV. Prefever preparation and postfever care. George X. Schwemlein, H. Worley Kendell and Robert M. Craig. 26: 329–335, June 1945.

Artificial fever-chemotherapy. IV. Prefever preparation and postfever care.—This is a description of routine hospital measures for the prefever preparation and postfever care of patients who are receiving fever therapy for early syphilis, neurosyphilis without psychosis, sulfanilamide resistant gonorrhea, and gonorrheal complications.

Detailed instructions for the taking of temperature, diet, and bed preparation of the patient are given for each day of the period of care. Patients with early syphilis (primary, secondary, and early latent) receive a single session of 8 hours of fever at 106.0° F. (rectal) combined with the administration of mapharsen and bismuth. Patients who have neurosyphilis without psychosis are treated with multiple sessions of fever at 105.0° to 106.0° F. (rectal) for a total of 12 treatments. The fever sessions are combined with administrations of mapharsen and bismuth subsalicylate in oil.

Patients having sulfanilamide resistant gonorrhea or gonorrheal complications receive the same prefever preparation, except for the use of bismuth, and the same postfever care as patients with early syphilis. The fever therapy consists of one session at 106.0° F. lasting 8 hours. Sulfathiazole is administered by mouth in this treatment.

Brit. M. J., London

*Haemolytic disease and congenital syphilis in siblings. The role of the Rh factor. Marjory N. McFarlane. No. 4423: 494–495, Oct. 13, 1945.

An indwelling syringe for penicillin administration. H. F. Barnard. No. 4423: 498–499, Oct. 13, 1945.

The incidence and causes of blindness in the British Commonwealth. Arnold Sorsby. No. 4425: 557–561, Oct. 27, 1945.

Third-generation syphilis. Correspondence. No. 4425: 585, Oct. 27, 1945.

Haemolytic disease and congenital syphilis in siblings. The role of the Rh factor.—The author discusses the value of tests for the Rh factor in confirming the diagnosis of hemolytic disease (erythroblastosis foetalis) in the presence of maternal syphilis. Since the discovery of the possible incompatibility between blood groups of the mother and fetus, it must now be clearly proved that there is no evidence of iso-immunization when establishing possible causes of hemolytic disease. Reports of several cases illustrating the relationship of the Rh blood factor and hemolytic disease are given.

The author observed a family in which hemolytic disease and congenital syphilis appeared in siblings. The first child, having Rh-positive blood, was born prematurely. The mother, who had Rh-negative blood, was diagnosed as syphilitic during her second pregnancy and continued irregular antisyphilitic treatment until early in her fourth pregnancy. Hemolytic disease was present in the second child, who died 2 days after birth, but histologic evidence of syphilis was entirely absent. The third pregnancy terminated in miscarriage. Iso-immunization to the Rh blood factor was reported as occurring because of the presence of powerful anti-Rh agglutinins and the author supposes that this also may have been responsible for the fetal hemolytic disease and for the subsequent miscarriage. The fourth child, who had Rh-negative blood, was born at term without signs of hemolytic disease; however, the cord blood Wassermann reaction was positive.

The author reports the outcome of the fourth pregnancy as showing that serologic evidence of syphilis in both mother and infant may be present without hemolytic disease despite the fact that hemolytic disease had previously appeared. The conclusion is made that blood-group incompatibility is the only proved cause of hemolytic disease as there is no satisfactory evidence to show that congenital syphilis or other infection can bring about this infant disorder.

Bull. U. S. Army M. Dept., Carlisle Barracks

Venereal disease rates. 4: 634–635, Dec. 1945.

*Reactions to penicillin. Frank E. Cormia, Leif Y. Jacobsen and E. L. Smith. 4: 694–702, Dec. 1945.

Reactions to penicillin.—In a study of unusual and serious reactions to prolonged courses of penicillin in 2,000 soldiers, it is reported that 0.5 percent of the group had reactions so severe that penicillin therapy was discontinued.

Reactions may develop at initial exposure to penicillin or at later intervals as a result of hypersensitiveness or because of developing sensitization. Both reactions may be serious and require discontinuation of therapy. The tissue primarily affected in most penicillin reactions is reported as being the blood vessels rather than the epidermis. Intradermal testing with penicillin is of limited value as an aid in diagnosis and as a guide for further treatment. A previous acute fungus disease may cause increased reactivity to penicillin.

A case is presented illustrating a serum sickness-like syndrome in a 27-year-old soldier who was treated for primary syphilis with 2,400,000 units of penicillin over a 7½-day period. Two days after treatment he developed a severe generalized urticaria along with moderate arthralgias, enlarged lymph nodes, and anemia. The urticaria involuted after 5 days. Serum therapy had not been given during the past year.

Another case is given showing a transient miliaria-like eruption, after the same course of penicillin therapy for primary syphilis, which involuted in 1 week.

A case is presented of a soldier who, 3 days after administration of penicillin for secondary syphilis, developed a few painful erythematous nodules on the pretibial surface with new lesions continuing to develop for 10 days despite the involution of the syphilitic process. The eruption subsided in 3½ weeks. Although the authors consider several theories, the cause for this reaction could not be determined.

Another case involves epididymitis accompanying early secondary syphilis. On the third day after penicillin treatment, the patient developed a tense, painful swelling in the globus major of the left epididymis, but no focus of infection was found. This condition subsided in 1 week with symptomatic treatment and clinical manifestations of syphilis involuted with penicillin. Epididymitis is rare in secondary syphilis, and the authors consider a possible Herxheimer reaction in this case.

BULL. VEN. DIS., BOSTON
- *Penicillin in the treatment of syphilitic pregnant women. 8: 4, Oct. 1945.

Penicillin in the treatment of syphilitic pregnant women.—Pregnant women who show a positive blood test for syphilis, or who report for a prenatal examination with a history which would indicate the need of antisyphilitic treatment, should be given 1,200,000 units of penicillin in doses of 20,000 units every 3 hours, night and day for 7½ days, if prior to the sixth month of pregnancy. After the sixth month of pregnancy, however, patients should be given 2,400,000 units of penicillin, in doses of 40,000 units every 3 hours night and day for 7½ days.

If the baby is born alive, a follow-up for both infant and mother should be made at the time of delivery and every month for 4 months, then at the eighth and twelfth months following birth. Careful clinical examination, serologic tests for syphilis, and roentgenogram of the long bones of the infant (at birth and in the eighth week) should be made.

Women treated with penicillin during pregnancy should be given quantitative titered serologic tests for syphilis each month until the date of delivery. The infant, if found to have congenital syphilis at birth, should be treated with penicillin.

CALIFORNIA'S HEALTH, SACRAMENTO
- Premarital and prenatal laws in effect five years. 3: 19, Sept. 15 and 30, 1945.
- Syphilis ranks twelfth as a cause of death in California. 3: 46–47, Nov. 30, 1945.
- Need for increased postwar State-local VD programs. 3: 54, Dec. 15, 1945.

CINCINNATI J. MED., CINCINNATI
- The present status of the oral administration of penicillin. A review. Raymond R. Suskind. 26: 446–452, Nov. 1945.

EPIDEMIOL. INFORM. BULL., WASHINGTON
- *Epidemiological notes. (Venereal disease in occupied Germany.) 1: 801–809, Nov. 15, 1945.

Epidemiological notes. (Venereal disease in occupied Germany.)—Reports of infectious diseases up to Sept. 22, 1945, in the British Zone in Germany with a population of about 17,500,000 are given. A marked increase is reported through August and September in venereal diseases, probably due to gradual enforcement of case notification. The incidence of gonorrhea is reported as 3 times that of syphilis. During 4 weeks ending September 22, 6,595 cases of gonorrhea and 2,109 cases of syphilis were reported. On this basis, the reported incidence of syphilis for a year is 1.6 per 1,000 inhabitants, which is almost 3 times the incidence reported in Denmark and Norway. The corresponding rate for gonorrhea is 5.0 per 1,000.

In the American Zone in Germany venereal diseases are not reported from all districts or are incomplete. During 4 weeks ending September 28, 4,115 cases of gonorrhea and 1,014 cases of syphilis were reported. It is believed that syphilis is less prevalent in Bavaria and adjoining southern districts than in the north.

Returns for venereal disease in Berlin and Hamburg are reported as too uncertain to make a comparison of incidence between the 2 cities.

HEALTH, TORONTO

Moral and social factors in VD control. C. E. Silcox. 12: 10, 30, Fall number, 1945.

Penicillin can kill. Morris Fishbein. 12: 11, 25, Fall number, 1945.

J. A. M. A., CHICAGO

*The effect of vivax malaria on spinal fluid and blood serologic test for syphilis. Harry M. Robinson, Jr., and William W. McKinney. 129: 667–668, Nov. 3, 1945.

Syphilis and social measures of prevention. Foreign letters. Paris. 129: 704–705, Nov. 3, 1945.

*Electroencephalographic findings in central nervous system syphilis. Before and after treatment with penicillin. J. Lamar Callaway, Hans Löwenbach, Ray O. Noojin, Beatrice H. Kuhn and Kathleen A. Riley. 129: 938–939, Dec. 1, 1945.

Penicillin in syphilis during pregnancy. Queries and minor notes. 129: 1068, Dec. 8, 1945.

Penicillin preparations. Queries and minor notes. 129: 1133, Dec. 15, 1945.

Treatment following penicillin for syphilis. Queries and minor notes. 129: 1134, Dec. 15, 1945.

Penicillin in early syphilis—syphilitic reinfection. 129: 1232, Dec. 22, 1945.

Toxemia of pregnancy and late syphilis. 129: 1232, Dec. 22, 1945.

The effect of vivax malaria on spinal fluid and blood serologic test for syphilis.—One hundred nonsyphilitic white male patients with vivax malaria were studied to determine the effect of vivax malaria on the spinal fluid and blood serologic reactions.

In no case were abnormalities of the spinal fluid found, but in 44 there were positive or doubtful blood Kahn reactions. The patients with negative blood serologic tests were not followed, but those who were positive were followed at weekly intervals.

The authors' conclusions follow:

1. Vivax malaria did not produce any change in the spinal fluid Kahn reaction in any of the 100 patients in this series.

2. No elevation of the spinal fluid cell count was noted in any specimen.

3. In 2 instances the Pandy reaction was reported as "a trace."

4. Thirty-three percent of the cases examined gave positive blood Kahn reactions and 11 percent gave doubtful reactions.

5. There is no apparent correlation between the number of attacks of vivax malaria and the development of positive serologic reactions for syphilis.

6. Eighty-three and eight-tenths percent of those with positive reactions had negative reactions at the end of 4 weeks.

7. Seventy percent of those with doubtful reactions had negative reactions at the end of 4 weeks.

8. The serologic reactions for syphilis were negative in all cases at the end of 11 weeks.

Electroencephalographic findings in central nervous system syphilis. Before and after treatment with penicillin.—To determine whether treatment with penicillin has any influence on the cerebral electroactivity, the electroencephalograms of 38 neurosyphilitic patients were studied before and after penicillin therapy.

No correlation was found between the severity of the neurosyphilitic disorder and the presence or absence of electroencephalographic abnormalities. Many formerly abnormal electroencephalograms became normal after 4 million units of penicillin were administered within 10 days, and most of the remaining records showed varying degrees of improvement. A case report of a patient with dementia paralytica is given as an illustration. No invariable correlation was reported to exist between the clinical results of treatment and the electroencephalographic changes.

The abnormal electroencephalograms are interpreted as a consequence of local cerebral anoxia and generalized or localized cerebral inflammation, with many of these abnormalities apparently reversible. Encephalitic involvement is indicated in the presence of abnormal cerebral electroactivity.

The authors state that their findings indicate that the electroencephalogram can often be used as a valuable adjunct in determining the effect of penicillin treatment in central nervous system syphilis.

J. A. PHARM. A. (PRACT. PHARM. ED.), BALTIMORE

New dosage forms of penicillin. Chester S. Keefer, Robert P. Herwick, Walton Van Winkle, Jr., and Lawrence E. Putnam. 6 : 272–276, Oct. 1945.

Penicillin. (Reasons for shortage of). Robert P. Fischelis. 6 : 354, Dec. 1945.

J. MISSOURI M. A., ST. LOUIS

What the general practitioner should know about leprosy. Norman Tobias. 42 : 209–213, Apr. 1945.

J. OKLAHOMA M. A., OKLAHOMA CITY

Report of Committee on Control of Venereal Diseases. 38 : 493–494, Nov. 1945.

J. ROY. ARMY M. CORPS, LONDON

*Notes on the significance of fever in syphilis with a reference to hypopyrexia. J. Wallman. 85 : 117–122, Sept. 1945.

Notes on the significance of fever in syphilis with a reference to hypopyrexia.—This is a discussion of the possibility of thermal upset in cases of syphilis at all stages of the disease.

Syphilitic fever occurring with eruption is usually found in the secondary stage of the disease; without eruption, it is known as "essential fever" and consists of 3 types. One occurs in intermittent form, showing daily exacerbations apt to be confused with malaria; the second is a moderate fever often accompanied by generalized muscle pain and gastric disturbance; the third is irregular fever presenting rise and fall in temperature in a capricious and unpredictable manner. Clinical evidence of all forms of syphilitic fever should be accompanied by laboratory confirmation, such as blood culture and agglutination tests.

Descriptions of fever in primary, secondary, early malignant, and tertiary syphilis are given by the author. Hypopyrexia may occur in either acquired or congenital syphilis and ordinarily disappears with antisyphilitic treatment.

The author also discusses fever as an indication of the reactivation of syphilis due to therapeutic conflict between the drug and the germ. Pyrexial activations may occur at the beginning, during, or at the end of a course of arsenic medication, indicating that the living virus persists in the body and that continued treatment is necessary.

Latent syphilis may be activated by physical agents such as radium, X-rays, cold weather, or humid climates. Chemical agents, despite their curative properties, often provoke activation of the disease, with possible enlargement or multiplication of lesions of skin or mucous membranes. Therapeutic activations are most frequently observed when treatment has been insufficient or when the spirochete is especially resistant to the drug used. The importance of recognizing thermal reactions during the treatment of syphilis as an index to the resistance of the treponema is stressed. In such cases the dosage of arsenical should be increased, or, more frequently, the drug changed.

J. TENNESSEE M. A., NASHVILLE

Hodgkin's disease: Special reference to survival. (Syphilis in differential diagnosis.) Charles C. Smeltzer. 38 : 281–286, Sept. 1945.

M. WOMAN'S J., CINCINNATI

Thirty years of medical practice in Morocco. Eugenia Delanoe. 52 : 44–46, Nov. 1945.

New England J. Med., Boston

*Penicillin blood levels for 24 hours following a single intramuscular injection of calcium penicillin in beeswax and peanut oil. Monroe J. Romansky and George E. Rittman. 233 : 577–582, Nov. 15, 1945.

*The treatment of gonococcal urethritis with single injections of penicillin-beeswax peanut oil mixture. William Leifer, Samuel P. Martin and William M. Kirby. 233 : 583–585, Nov. 15, 1945.

Penicillin blood levels for 24 hours following a single intramuscular injection of calcium penicillin in beeswax and peanut oil.—The authors report further on the single injection of 300,000 O. u. of calcium penicillin in 4.8 percent beeswax (by weight) in peanut oil. Effective levels of penicillin in the blood were produced and maintained for about 24 hours. Penicillin continued to be excreted in the urine for approximately 3 days. This method of penicillin therapy is reported as adequate for all but overwhelming infections.

No assayable evidence of penicillin was found in studies of the spinal fluid removed 4 hours after the single injection, but a 6-hour collection of bile revealed penicillin to be present at a level of 1 to 2 O. u. per cubic centimeter.

The dose of penicillin should be the amount maintaining adequate blood levels of the drug for 24 hours rather than different amounts for each disease. Administration for extremely severe infections can be 300,000 units in 1 cc. given at 12-hour intervals. Patients weighing 100 pounds or less can be given 2,000 units per pound with maintenance of adequate penicillin levels in the blood for 24 hours.

Calcium penicillin in beeswax and peanut oil is reported as maintaining its potency for at least 9 months at refrigerator, room, and 37° C. temperatures. There is no deterioration after 24 hours at 56° C. or after 2 hours at 100° C.

The literature is reviewed and charts are presented showing the maintenance and duration of calcium penicillin blood levels in various amounts of beeswax and peanut oil.

The treatment of gonococcal urethritis with single injections of penicillin-beeswax peanut oil mixtures.—Results of observations made on 217 men with gonococcal urethritis treated with single intramuscular injections of 100,000 to 300,000 units of penicillin suspended in mixtures of beeswax and peanut oil are given. No resultant local or systemic toxic manifestations were noted.

Seventy-four (84 percent) of 88 patients were cured when treated with single injections of 100,000 units, and of 91 patients treated with 300,000 units, 83 (91 percent) were cured. The mixture of penicillin in beeswax-peanut oil required larger amounts of penicillin to produce results equal to those of the saline solution.

Nine of the 24 failure cases occurred following the seventh day, and of these 7 were detected by bacteriologic methods alone. The authors report this as indicating the need for a minimal clinical and bacteriologic posttreatment observation period of 21 days.

Following injections of the penicillin mixtures, assays of the blood and urine revealed marked variability of absorption and excretion.

Equally satisfactory mixtures were reported with either sodium or calcium penicillin, and no significant difference in results was noted when the concentration of beeswax was varied from 4 to 12 percent.

A single intramuscular injection of 1.0 cc. of a mixture containing 300,000 units of penicillin in 4 to 6 percent beeswax by volume in peanut oil is given as a highly satisfactory method of treating acute gonococcic urethritis. The authors confirm studies made of this mixture by Romansky, Murphy, and Rittman.

New York State J. Med., New York

Penicillin and syphilis: a warning. 45 : 2428, Nov. 15, 1945.

*A summary of the problems of sulfa and penicillin fastness. M. L. Tainter 45 : 2509–2514, Dec. 1, 1945.

A summary of the problems of sulfa and penicillin fastness. — Spirochetes have been repeatedly demonstrated to become resistant to arsenicals if the therapy is not correctly carried out, gonococci have become increasingly resistant to the sulfonamides until considerable difficulty is now encountered in using the sulfonamide compounds effectively, and resistance to penicillin has been encountered.

The author notes that the state of sulfonamide fastness may be due either to an uncovering of naturally resistant organisms through the killing off of the more susceptible ones, or development of increased ability by the organisms to synthesize para-aminobenzoic acid. Correlation between the para-aminobenzoic acid production of organisms in the normal, resistant, and sensitive states is needed. The question of whether sulfonamide fastness developed in vitro will be accompanied by a similar state in the patient seems to be answered in the literature on gonorrheal infection which points to a close correlation in this respect.

It is stated that penicillin resistance is probably an inherited characteristic which originates through mutation, its origin being independent of penicillin treatment. It is stressed that initial dosages of the drug should be high and continued vigorously until the infection has been completely eliminated. Inefficient self-medication is discussed along with efforts being made by the Food and Drug Administration to control the potency and the recommended dosages of all forms of penicillin. An extralegal self-medication developing in penicillin comparable to that in the sulfonamide drugs will undoubtedly lead to an increase in the number of penicillin resistant infections.

NORTHWEST MED., SEATTLE

The administration of penicillin. A simplified technic. Norman W. Clein. 44 : 309–311, Oct. 1945.

Rapid and intensive treatment of syphilis and gonorrhea. Sanford P. Lehman, Jean H. Basilicato and Lila Anderson. 44 : 351–355, Nov. 1945.

PUB. HEALTH NEWS, TRENTON

Present trends in venereal disease control. Glenn S. Usher. 27 : 377–379, Dec. 1945.

Public health nursing. Gertrude L. McLaughlin. 27 : 403–409, Dec. 1945.

PUB. HEALTH NURSING, NEW YORK

The nurse and the spinal fluid test. Charlotte P. Smith. 37 : 528–530, Oct. 1945.

Industrial nurse as health educator. Helen L. Owen. 37 : 567–570, Nov. 1945.

SCIENCE, LANCASTER

The activity of penicillins G and X in vitro. Raymond L. Libby and Norma L. Holmberg. 102 : 303–304, Sept. 21, 1945.

BAL (British anti-lewisite). L. L. Waters and Chester Stock. 102 : 601–606, Dec. 14, 1945.

Oral penicillin—A comparison of various modes of administration. Alfred H. Free, Robert F. Parker and Barbara E. Biro. 102 : 666–668, Dec. 28, 1945.

SOUTH. M. J., BIRMINGHAM

Splenic rupture in therapeutic malaria. M. R. Moses. 38 : 745–746, Nov. 1945.

*Report of two cases of paresis treated with penicillin. W. R. Rosanoff and J. K. Norman. 38 : 819–822, Dec. 1945.

Report of two cases of paresis treated with penicillin.—Two cases of paresis treated exclusively with penicillin are reported.

Case 1 presents a 43-year-old Filipino male who was diagnosed as having paresis and who had suffered 3 epileptic seizures prior to his admission to a U. S. Public Health Service hospital. He had served 21 years in the Navy and denied ever having had venereal disease.

When admitted, the patient was overactive, very talkative, irritable, and grandiose. Physical examination revealed the right pupil to be slightly smaller than the left and to react only slightly to light. There was a fine tremor of the lips and a marked tremor of the outstretched hands. Incoordination was demonstrated on the finger to nose test. Tables are presented summarizing pretreatment and posttreatment studies and laboratory studies.

Penicillin treatment, started May 18, 1944, consisted of a total of 3,000,000 units intramuscularly administered at intervals until June 20. Clinical improvement was noted during the first week. Within 3 weeks overactivity and grandiose expressions subsided. The patient was allowed freedom of the grounds and reported faithfully for his injections. Repeated examinations revealed no evidence of mental disease and he was discharged from the hospital on October 8. An electroencephalogram done at that time was termed as "normal." Despite clinical improvement, there was no improvement that could be demonstrated by the Rorschach technic.

Case 2 involves a 29-year-old white man who had extreme guilt feelings, deep depression, a desire to die, and psychomotor retardation. History revealed intermittent antisyphilitic treatment since the age of 17. Upon admission to a U. S. Public Health Service hospital, insight was lacking but no disorientation or memory defect was noted.

The interpretation of the electroencephalogram was borderline with diffuse irregularity. Penicillin therapy was begun on Jan. 8, 1945, and a total of 1,080,000 units was given in doses of 20,000 units intramuscularly every 6 hours. A marked change came about immediately after completion of treatment. The patient became more cheerful, and in the following 3 weeks lost the feelings of guilt, uncleanliness, and desire to die. Until about Mar. 5, 1945, insight was lacking and judgment was poor. Since March 20 he has been on an outside work detail and adjustment has been quite satisfactory, with adequate insight and good judgment. An electroencephalogram done on March 30 still revealed mild diffuse irregularity and the Wechsler-Bellevue test showed no appreciable change. The results of a second Rorschach test indicated a marked degree of improvement in the patient's psychosis.

With penicillin being the only therapy employed, the authors note definite clinical and laboratory evidence of the arrest of the syphilitic process. However, with regard to the second case they point out that patients presenting a similar syndrome without syphilis have quite regularly recovered with no specific therapy.

TEXAS STATE J. MED., FORT WORTH

*The use of aluminum-penicillin mixtures in maintenance of blood levels of penicillin. I. Intramuscular injections of aluminum-penicillin. S. W. Bohls and E. B. M. Cook. 41 : 249–252, Sept. 1945.

*The use of aluminum-penicillin mixtures in maintenance of blood levels of penicillin. II. Combination of delayed absorption by the use of aluminum-penicillin and renal blockage with benzoic acid. S. W. Bohls and E. B. M. Cook. 41 : 342–344, Nov. 1945.

The use of aluminum-penicillin mixtures in maintenance of blood levels of penicillin. I. Intramuscular injections of aluminum-penicillin.—The authors report the effect of aluminum-potassium sulfate and penicillin mixtures in delaying intramuscular absorption. Details of in vitro and in vivo studies are given.

The success of the in vitro studies and of the in vivo trial in rabbits of the use of aluminum for delaying intramuscular absorption, with a subsequent maintenance of longer periods of therapeutic levels in the blood, seemed to warrant a clinical trial of this mixture. Twenty-two patients in venereal disease rapid treatment centers were injected with various doses of aluminum-penicillin and plain penicillin in buffer solution, the first objective being to determine the smallest single-injection dose which would maintain an assayable level in the blood for 6 to 9 hours. Doses of 50,000 units were found to maintain such a level for 6 hours, whereas 75,000 units were required to maintain the level for 9 hours.

A second series of patients was used to study the effect of repeated daily injections of the aluminum-penicillin doses, in connection with their possible use in the treatment of syphilis. Results showed that the use of this drug approximately doubled the level of penicillin in the blood over that of plain penicillin, with no local or systemic reactions noted.

Although the number of cases tested was few, the practicability of the use of aluminum-penicillin mixtures in decreasing both dosage of penicillin and number of injections is evident. Further tests with this drug may reveal that syphilis and gonorrhea may be treated by general practicing physicians without the need of hospitalization in rapid treatment centers

The use of aluminum-penicillin mixtures in maintenance of blood levels of penicillin. II. Combination of delayed absorption by use of aluminum-penicillin and renal blockage with benzoic acid.—In a previous paper, the authors reported on the use of potassium aluminum sulfate-penicillin mixtures as a method of delaying absorption of penicillin following intramuscular administration, single intramuscular injections of 50,000 units maintaining a therapeutic level of penicillin in the blood for 6 to 9 hours.

This article reviews studies on the combination of delayed absorption and renal blockage, or the depression or excretion of penicillin in the urine, in the maintenance of blood levels, and discusses a present study on the use of single and double injections of aluminum-penicillin and oral administration of benzoic acid.

Twenty-one patients were used. One group of 11 was given a primary dose of four 0.6 gm. gelatin capsules of benzoic acid orally, followed in 30 minutes by an intramuscular injection of 25,000 units of aluminum-penicillin. A second 25,000-unit injection of the drug was administered 7 to 8 hours later, and two 0.6 gm. capsules of benzoic acid were given at 4-hour intervals after the first injection up to 24 hours. Another group of 10 patients received the same schedule of benzoic acid but only a single intramuscular injection of 50,000 units of aluminum-penicillin.

The combined action of delayed absorption and renal blockage resulted in the maintenance of blood levels up through 16 to 19 hours with two 25,000-unit injections at 7- to 8-hour intervals, and assayable blood levels up through 28 hours with one injection of 50,000 units of penicillin. Delayed absorption alone was effective in maintaining blood levels up through 6 to 9 hours only, as previously reported.

U. S. Nav. M. Bull., Washington

- *A rapid method for the primary isolation and identification of Neisseria. Abraham M. Weckstein. 45: 889–894, Nov. 1945.
- Venereal disease discipline. Functions and problems of educational prophylaxis in the U. S. Navy. Howard W. Ennes, Jr. 45: 997–1016, Nov. 1945.
- Transportation of Japanese prisoners of war. The medical department of an attack transport. 45: 1069–1075, Dec. 1945.
- *Case of keratodermia blennorrhagicum (gonorrheal dermatitis). John R. Gately. 45: 1159–1162, Dec. 1945.

A rapid method for the primary isolation and identification of Neisseria.—In order to simplify the cultivation and identification of Neisseria gonorrhoeae, N. intracellularis, and N. catarrhalis, the author recommends the use of plates of solid media, one containing dextrose, the other maltose. This is said to provide for isolation, identification, and sugar fermentation confirmation of these organisms without the need for subculturing to obtain pure cultures or the need for special media for sugar fermentation confirmation. Adequately detailed descriptions for the preparation of the media are given, but the paper does not provide any data on culture and identification by this as compared to other methods.

Case of keratodermia blennorrhagicum (gonorrheal dermatitis).—The author presents a case of keratodermia blennorrhagicum characterized by articular pains, headache, fever, slight urethral discharge, and bilateral eruptions on the skin of the hands and feet.

A 21-year-old fireman on a carrier in the Pacific presented himself to sickbay with itching of the hands and feet, pain in both knees, backache, fever of 3 days' duration, and a slight watery urethral discharge. Exposure had occurred 4 days previous to the onset of symptoms. On both hands were vesicles, pustules, and incrusted lesions, while raw areas appeared on both feet.

Smears of the urethral discharge were negative but examination of material from the extragenital lesions revealed intracellular and extracellular gonococci. Sulfathiazole therapy, 1 gm. every 4 hours, was administered orally for 3 days. The patient's temperature and pulse receded to normal, no new lesions appeared, and the pruritis subsided. Silver nitrate, 10 percent, was applied locally to the cornified areas of the hands and feet.

The rarity of keratodermia blennorrhagicum (only 15 cases have been recorded in recent years) has given rise to a variety of theories as to the pathology of the disease. In the case described above, it is believed that the gonococcus by-passed a highly resistant urethral mucous membrane and became bloodborne, resulting in a gonococcemia and gonotoxemia causing a local nonvenereal manifestation of a venereal disease.

WEST VIRGINIA M. J., CHARLESTON

A flocculation test for syphilis: its technic and evaluation. W. L. Hardesty and Anita Hullman. 41 : 237–240, Sept. 1945.

Special Reports

A follow-up study of specially selected syphilis patients over a minimum period of 5 years to determine the effectiveness of penicillin alone or combined with other agents in the treatment of syphilis has been started by the Venereal Disease Division.

At each of 11 cooperating rapid treatment centers, patients are selected for this research study on the basis of residential stability, personality, amendability, and complete willingness to cooperate with the program. Upon completion of therapy the rapid treatment center will provide physical examinations, blood serologic tests, and spinal fluid examinations over a period of at least 5 years.

To insure effective follow-up of the patients, a research investigator has been assigned to each of the centers. These investigators are responsible solely for the patients reporting on schedule for their physical examinations and blood tests—monthly for one year after completion of therapy, trimonthly during the second year, and thereafter semiannually through the fifth year. The minimum schedule of spinal fluid examinations consists of an examinaton at the start of therapy, and at 12 and 24 months thereafter. If the initial spinal fluid examination is positive, repeat examinations will be made every 6 months thereafter.

Photographs of any lesions present are made before treatment is started in order to assist in the differential diagnosis of lesions developing subsequently, i. e., as to whether the new lesions resulted from syphilitic reinfection, syphilitic relapse, or other causes.

Four schedules of treatment are used:

(1) 2,800,000 units of penicillin administered in intramuscular injections of 25,000 units each at intervals of 3 hours, over a period of 14 days.

(2) (a) same as above, augmented by
  (b) Arsenoxide, 1 milligram per kilogram of body weight, not to exceed a total dosage of 60 milligrams each injection, to be given on the 1st, 4th, 7th, 10th, and 13th days.
  (c) Bismuth (oil insoluble), 200 milligrams given on the 1st, 7th, and 13th days.

(3) Penicillin–oil–beeswax, 300,000 units in single daily injections for 14 days, or a total of 4,200,000 units.

(4) (a) same as above, augmented by
  (b) and (c) same as schedule 2.

For patients with asymptomatic neurosyphilis the schedule of treatment will be exactly as above except that those patients with group III (positive or strongly positive results in all of the four standard spinal fluid tests: quantitative cerebrospinal fluid Wassermann, cells, protein, and colloidal) spinal fluid changes will require an additional 10 days of penicillin treatment at the same schedule dosage.

Cases of Syphilis and Gonorrhea Reported for the First Time in States, Territories, and Possessions for the First 11 Months of 1945

Area	Syphilis										Gonorrhea	
	Total [1]		Primary and secondary		Early latent		Late and late latent		Congenital			
	Nov.	Jan.-Nov.	Nov.	Jan.-Nov.	Nov.	Jan.-Nov.	Nov.	Jan.-Nov.	Nov.	Jan.-Nov.	Nov.	Jan. Nov.
Alabama	811	9,601	191	1,534	222	2,287	215	2,302	39	299	880	8,445
Arizona	93	1,385	29	378	30	417	27	503	5	84	101	1,146
Arkansas	683	13,969	133	3,989	235	4,850	227	4,139	22	558	590	6,923
California	1,975	27,708	479	5,050	465	7,131	936	13,599	48	719	2,119	25,535
Colorado	173	2,164	68	644	42	533	61	913	2	74	178	2,034
Connecticut	170	2,164	40	278	32	544	76	1,021	6	60	69	1,228
Delaware	38	373	17	111	9	114	7	84	2	23	14	147
District of Columbia	225	3,214	54	729	92	1,081	69	1,206	1	84	622	5,868
Florida	1,414	15,440	294	2,285	620	6,432	374	5,070	46	467	1,567	13,313
Georgia [4]												
Idaho	47	736	14	134	15	202	15	316	1	27	57	541
Illinois	1,462	19,509	341	3,618	407	4,776	683	10,580	31	535	2,307	23,026
Indiana	370	5,464	85	1,086	50	617	105	1,865	12	148	274	2,525
Iowa	123	1,227	31	291	40	368	37	438	6	50	219	2,090
Kansas	142	2,025	33	422	22	424	79	1,084	8	95	251	2,155
Kentucky	457	4,633	185	1,570	135	1,179	70	1,239	16	216	613	5,879
Louisiana	1,159	10,698	257	2,394	303	3,063	206	2,418	43	562	648	8,669
Maine	81	638	25	201	9	103	38	263	9	38	97	965
Maryland	692	10,136	178	1,698	179	2,332	205	2,690	7	179	457	5,152
Massachusetts	361	3,567	135	860	0	0	207	2,513	19	194	430	3,921
Michigan	1,293	14,672	335	3,018	347	4,176	411	5,364	39	333	983	10,726
Minnesota	106	1,169	31	218	17	188	49	666	4	41	263	2,245
Mississippi	1,875	19,870	576	6,269	685	6,717	526	5,921	88	893	2,703	29,000
Missouri	850	8,717	195	2,143	300	2,691	320	3,289	23	308	679	7,550
Montana	27	367	4	71	0	29	17	116	1	23	38	284
Nebraska	66	950	12	189	18	258	29	418	1	29	92	1,040
Nevada	62	411	12	95	1	12	32	173	1	6	19	569
New Hampshire	15	327	3	52	4	44	6	201	2	23	57	369
New Jersey	703	8,294	129	1,196	190	2,511	352	4,218	26	285	480	4,510
New Mexico	98	1,735	16	323	35	498	41	795	6	119	68	1,366
New York	2,593	27,952	607	5,906	594	6,373	1,312	14,712	63	774	[2] 1,427	[2] 15,520
North Carolina	687	7,417	255	2,605	276	2,750	118	1,675	38	344	798	8,876
North Dakota	26	206	9	42	4	39	3	67	1	12	71	547
Ohio	1,427	18,873	382	4,323	413	5,054	579	8,463	43	621	659	5,602
Oklahoma	463	6,095	104	1,024	173	1,724	106	1,740	21	291	568	8,116
Oregon	128	1,565	40	393	7	201	62	841	8	56	200	2,252
Pennsylvania	805	9,496	185	1,847	327	3,798	256	3,138	28	432	[3] 310	[3] 2,344
Rhode Island	124	969	22	205	14	87	58	533	0	25	48	377
South Carolina	562	6,543	180	2,106	190	2,063	129	1,732	37	424	777	6,757
South Dakota	27	372	13	87	3	79	9	180	1	21	56	520
Tennessee	1,006	10.906	257	2,348	358	4,454	354	3,762	32	299	1,415	14,657
Texas	857	11,844	221	3,184	392	5,175	201	2,592	40	524	1,158	14,727
Utah	36	426	9	95	13	106	14	218	0	14	103	584
Vermont	8	126	5	22	0	26	1	50	2	14	27	319
Virginia	565	8,652	171	2,645	219	3,372	140	2,216	24	352	522	6,729
Washington	286	3,087	58	604	99	888	105	1,267	4	77	541	4,977
West Virginia	295	3,473	175	1,696	67	837	42	770	5	108	736	5,527
Wisconsin	202	1,987	58	424	19	36	125	1,511	------	16	132	1,177
Wyoming	26	342	4	73	2	100	8	103	------	2	32	212
Total United States	25,694	311,494	6,657	70,475	7,674	90,739	9,042	118,974	861	10,878	26,455	277,041
Alaska	10	128	1	35	3	22	6	22	------	1	40	416
Canal Zone [4]	------	------	------	------	------	------	------	------	------	------	------	------
Hawaii	56	479	1	24	5	56	48	364	2	31	44	352
Puerto Rico [4]	------	------	------	------	------	------	------	------	------	------	------	------
Virgin Islands [4]	------	------	------	------	------	------	------	------	------	------	------	------
Total United States and Possessions	25,760	312,101	6,659	70,534	7,682	90,817	9,096	119,360	863	10.910	26,539	277,809

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[1] Includes "not stated."

[2] New York City only.

[3] Philadelphia only.

[4] No report for November.

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DOCUMENTS SECTION

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UNITED STATES PUBLIC HEALTH SERVICE

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Chief, Venereal Disease Division

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The Revised Reports and Forms of the Venereal Disease Division

J. R. Heller, Jr., M. D.,[1] and Lida J. Usilton, M. A.[2]
United States Public Health Service

Since the introduction of rapid treatment for syphilis and the development of a Nation-wide system of special hospital facilities for its administration, emphasis in the control program has changed from treatment and case holding in clinics and in local health departments to case finding, diagnosis, and referral. The work of local health departments is no longer evaluated in terms of the number of injections of arsenical administered, or the proportion of early syphilis held to treatment until 20 injections each of an arsenical and a heavy metal are administered; rather such questions are asked as—Are patients being interviewed for contacts? Are accepted technics of epidemiologic investigation and other methods to discover new cases of venereal disease being carried out? Are appropriate cases being referred to rapid treatment centers for inpatient rapid treatment?

In line with this change of emphasis the Venereal Disease Division has undertaken a review of its reporting requirements and has made substantial reductions in the number of items requested on clinic reports and in the frequency of their submission. The contents of Form 8954–A, Clinic Monthly Report, have been changed to include information regarding diagnosis, referral, and epidemiologic activity. Moreover, questions regarding activity, such as number of blood tests and number of visits, have been eliminated. Since responsibility for much of the activity may not rest with the clinic, the title of this report has been changed to Quarterly Venereal Disease Control Activity Report. This would allow its completion by city and local health departments as well as by clinics.

The semiannual report has also been revised drastically, and all but 3 of the constituent units eliminated. These 3 units (renamed 8954–B, Quarterly Venereal Disease Control Activity Report for State and City Health Departments) supplement the information recorded on the 8954–A. When 8954–A and –B were submitted for approval to the Committee on Venereal Disease Control of the Conference of State and Territorial Health Officers, it was suggested that they be submitted quarterly. This was agreed to by the Committee, which recommended that the former monthly Morbidity Reports (8958–B) also be submitted quarterly.

The following five reports, then, constitute the requirements of the Venereal Disease Division.

1. *Quarterly Venereal Disease Control Activity Report (8954–A)*.—To be prepared by each constituent health unit and submitted *quarterly* to the U. S. Public Health Service by State health departments.
2. *Quarterly Venereal Disease Control Activity Report (8954–B)*.—To be prepared and submitted *quarterly* to the U. S. Public Health Service by State health departments.
3. *Quarterly Morbidity Report (8958–B)*.—To be submitted *quarterly* to the U. S. Public Health Service by State health departments.
4. *City Morbidity Report (VM–820)*.—To be prepared and submitted *quarterly* to the U. S. Public Health Service by the health departments of cities of 200,000 population or over.
5. *Monthly Reports of Inpatient Care*.—To be prepared and submitted *monthly* for each rapid treatment center or bed contract project approved by the U. S. Public Health Service.

Presented before the Venereal Disease Committee, State and Territorial Health Officers Association annual meeting, Washington, April 8–11, 1946.

[1] Medical Director, Chief, Venereal Disease Division.

[2] Chief of Control Aids, Venereal Disease Division.

Form 8954-A
FEDERAL SECURITY AGENCY
PUBLIC HEALTH SERVICE
Division of Venereal Diseases
REVISED JUNE 1946

Budget Bureau No.
Approval Expires

QUARTERLY VENEREAL DISEASE CONTROL ACTIVITY REPORT

(For Clinic and Epidemiologic Activities)

JURISDICTION ______________________________ PERIOD FROM ______________

TO ______________

A. Number of Diagnostic Observations Completed in Clinics in This Jurisdiction :
1. Not infected with a venereal disease ------------------
2. Infected with a venereal disease ------------------
3. Dropped or transferred without completion of diagnosis ------------------

	SYPHILIS				GONORRHEA	OTHER V.D.
	Primary & Secondary	Early Latent	Congenital	Other		
B. Number of Cases (*Not Previously Treated*) Diagnosed as Infected or Admitted to Clinics :						
1. Referred to Rapid Treatment Center or other in-patient care						
2. Referred to private physicians						
3. Referred to clinics outside this jurisdiction						
4. Admitted to treatment in clinics in this jurisdiction						
C. Number of Cases (*Previously Treated*) Admitted to Clinics for Further Treatment or Observation :						
D. Number of Cases (*Previously Treated*) Referred to Rapid Treatment Centers or Other In-Patient Care in Order to Complete Treatment :						
E. Number of Contacts Obtained by Staff Interview of :						
1. Patients in clinics or Rapid Treatment Centers						
2. Patients of private physicians, institutions, etc.						
F. Results of Epidemiologic Investigations : (a) Number completed | (b) Persons brought to treatment as a result of these investigations						
(a) 1. Contacts ------------ | (b) 1. Contacts						
(a) 2. Other suspects ------------ | (b) 2. Other suspects						
(a) 3. Lapsed cases ------------ | (b) 3. Lapsed cases						

Date Prepared ____________________, 19____

Submitted By ______________________________
Signature

____
Title

To be submitted to U.S.P.H.S. by health unit performing any of the activities included in this report

Form 8951-B
Federal Security Agency
U. S. Public Health Service

Budget Bureau No. ------------------
Approval expires ------------------

QUARTERLY VENEREAL DISEASE CONTROL ACTIVITY REPORT

(For State and City Health Departments*)

State---------------- **City**---------------- **For quarter ending**----------------

LABORATORY

Number of activities performed for					
Syphilis		Gonorrhea		Other venereal diseases	
Blood sera	Tests	Tests	Smears	Tests for	Chancroid
	Specimens examined		Complement fixation		Granuloma inguinale
Examination of spinal fluid			Cultures		Lymphogranuloma venereum
Darkfield examinations					

DISTRIBUTION OF DRUGS

Type of drug	To whom distributed			
	Public clinic	Rapid treatment center	Private physician	Institutions including hospitals, etc.
Penicillin (units)				
ARSENICALS (grams) Arsenoxide				
Neoarsphenamine				
Pentavalent				
All other				
Heavy metals (grams)				
Sulphas (grams)				
Others (specify)				

FEES TO PRIVATE PHYSICIANS

Type of case for which fee is paid	Syphilis				Gonorrhea	Other venereal diseases
	Primary and secondary	Early latent	Congenital	Other		
Number of cases referred to rapid treatment center						
Number of contacts reported to health department (diagnosis of informant)						
Number of contacts infected (diagnosis of contact)						
Number of patient treatments						

*Supplementary to clinic and epidemiologic activities reported on Form 8951-A

Approved by: --
(Signature of health officer)

Report prepared by: ------------------------------------

Date: ------------ ------------ ------------
(Month) (Day) (Year)

Form 8958 B
FEDERAL SECURITY AGENCY
PUBLIC HEALTH SERVICE
Division of Venereal Diseases
(Revised May 1944)

Budget Bureau No. 68-R035.
Expires 7-20-47.

QUARTERLY MORBIDITY REPORT

The .... State Health Department submits the following morbidity report on venereal diseases to the U. S. Public Health Service for the month of ...., 19......

Cases reported under treatment for the first time during month

SOURCE OF REPORT	COLOR AND SEX		SYPHILIS					GONORRHEA	CHANCROID	GRANULOMA INGUINALE	LYMPHOGRANULOMA
			Primary and Secondary	Early Latent	Late and Late Latent	Congenital	Not Stated				
BY PRIVATE PHYSICIANS	White and Unknown	Male									
		Female									
	Nonwhite	Male									
		Female									
	TOTAL,										
1.*											
BY CLINICS, HOSPITALS, OR OTHER INSTITUTIONS	White and Unknown	Male									
		Female									
	Nonwhite	Male									
		Female									
	TOTAL,										
2.*											

Date ...., 19......

Submitted by ....
(Signature)

....
(Title)

***Do not write in spaces numbered 1 or 2.**

16—39870-1 U. S. GOVERNMENT PRINTING OFFICE

FORM APPROVED

Budget Bureau No.

Date --

City ------------------------ State ---------------

Physicians and clinics in this city have reported during the QUARTER ------------------- to ------ ------------------- the following number of new cases of:

SYPHILIS:

- (a) Primary and secondary ------------ ---------
- (b) Early latent ------------ ---------
- (c) Late and late latent ------------ ---------
- (d) Congenital ------------ ---------
- Total ------------ ---------

GONORRHEA ------------ ---------

OTHER VENEREAL DISEASES:

- (a) Chancroid ------------ ---------
- (b) Granuloma inguinale ------------ ---------
- (c) Lymphogranuloma ------------ ---------
- (d) Other ------------ ---------
- Total ------------ ---------

(Health Officer)

F. S. A.—P. H. S.
VM-820

In addition to these reports, the Venereal Disease Division, from time to time, makes special requests for information on particular aspects of venereal disease control, especially when agencies other than the Public Health Service are cooperating in programs. An example of this was Form VM-1197 "Report on Selectees and Volunteers Suspected of Having Venereal Diseases" which was submitted semiannually to the Public Health Service. At present, interest is centered in obtaining data regarding the cooperative program of the Army, Navy, Public Health Service, and the State health departments for testing, diagnosis, referral, and treatment of separatees from the Armed Forces. To this end a 4-part form, "Separation Epidemiologic Report" (9576-B), has been introduced to aid the referral and investigation of these cases, and the reporting of "dispositions." In order to relieve the health departments of the task of preparing tabulations regarding separatees, it has been requested that a "disposition" copy of the form be returned to the U. S. Public Health Service for tabulation.

Mention should be made of certain forms designed by the Public Health Service and recommended to health departments for the internal operation of the program or the collection of data for the State health departments. These forms, of course, are not part of the required reports of the Venereal Disease Division. They include morbidity cards, punch cards, tabulating forms, clinic records, central registry cards, and contact reports. Some of these forms are used for interstate referral of information, therefore standardization increases their usefulness for interstate purposes. For instance, the Army, Navy, and Coast Guard, with the cooperation of the Public Health Service, consolidated the various forms used for the reporting of contact information so that within each service a standard form was used. Moreover, the forms used by the various services were similar in content, thus further facilitating their use by health departments.

One of the forms developed jointly by the Public Health Service and the State health departments is the Epidemiologic Report (9576-A), commonly called the "multiple form." This form was designed to facilitate reporting, investigation, and diagnosis of contacts and other suspects. It replaces, in the States where adopted, the multiplicity of forms previously used in conducting epidemiologic investigations. By the use of this form sufficient copies are available for use by the field investigating staff, central registry, tabulating unit, and clinic personnel, or for outside referral without endless transcription and letter writing. To date[3] this form, in essence, has been adopted by 30 States. The printing of column numbers on the form for convenience of card punching is entirely optional, and the Venereal Disease Division is now recommending that these be eliminated, or at least restricted to the copy of the form which is forwarded to the tabulating unit for punching.[4] Copies of the form used by

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[3] Dec. 31, 1945.

[4] Printed column numbers were considered necessary during the war because of the lack of skill of keypunch operators and the shortage of printing facilities.

Budget Bureau No. 68-R233
Approval expires 8-31-46
Month ending ____________

FEDERAL SECURITY AGENCY - U. S. PUBLIC HEALTH SERVICE
Division of Venereal Diseases
MONTHLY REPORT OF IN-PATIENT CARE--FINANCIAL STATEMENT

CENTER (or Agency contracting for beds) ____________
Location ____________

OBJECT OF EXPENDITURE	SOURCE OF FUNDS							Value of inventory at beginning of Month	Value of inventory at end of Month	NET COST (Col.7 + 8 - 9)
	R T C Project Grant		State Contribution		County and/or City contribution	Other contributions	TOTAL EXPENDITURES			
(See Instructions with each pad)	Funds	USPHS direct salaries or supplies	Federal V.D. Grant-in-aid	State Appropriation						
	1	2	3	4	5	6	7	8	9	10
1. Personal services (in-pat.care)								X X X X X X	X X X X X	
2. Med.& lab. supp.ex. Penicillin										
3. Penicillin										
4. Food (except feeding contracts)										
5. Miscellaneous household supplies										
6. Heating fuel										
7. Subsistence items (except food)										
8. Other supplies										
9.										
10. Transportation of patients								X X X X X X	X X X X X	
a. Fares to common carriers								X X X X X X	X X X X X	
b. Travel & subsistence of escorts								X X X X X X	X X X X X	
11. Auto: Gas, Oil, Tires, Repairs										
12. Travel (ex. pat. transportation)								X X X X X X	X X X X X	
13. Rentals								X X X X X X	X X X X X	X X X X X X X X
14. Utilities								X X X X X X	X X X X X	
15. Feeding Contracts								X X X X X X	X X X X X	
16. Laundry Contracts								X X X X X X	X X X X X	
17. Hospital fees and contracts								X X X X X X	X X X X X	
18. Subtotal (Total for Col. 8 & 9)										X X X X X X X X
19. Repairs bldg.(labor & materials)								X X X X X X	X X X X X	X X X X X X X X
20. Non-expendable equipment								X X X X X X	X X X X X	X X X X X X X X
21.								X X X X X X	X X X X X	X X X X X X X
22. TOTAL								X X X X X X	X X X X X	

QUARTERS. SUBSISTENCE AND LAUNDRY FURNISHED STAFF

No.receiving Quarters	Number receiving meals			No.receiving Laundry	$ Payroll Deductions			
	1 per day	2 per day	3 per day		Q	S	L	Total

Signature ____________
Title ____________
DATE ____________
Month Day Year

CHECK COPY: St.H.D. ☐ Dist.Off. ☐ USPHS ☐ Files ☐

Budget Bureau No. 68-R234
Approval Expires 8-31-46

FEDERAL SECURITY AGENCY - U. S. PUBLIC HEALTH SERVICE
Division of Venereal Diseases

CENTER (or Agency contracting for beds) ____________

MONTHLY REPORT OF IN-PATIENT CARE - SUMMARY

Provided under USPHS National Defense Funds

Month ending ____________

Location ____________

No. hospitals under contract ______

Table 1. CLASSIFICATION OF PATIENT LOAD

PATIENT LOAD (See Instructions with each pad)			Line No.	SYPHILIS							Not in combination with Syphilis				
				Primary and Secondary	Early latent	Late or late latent	Pregnancy	Congenital	C N S (Asymp. Meng.)	Total Syphilis	Gonorrhea	Other venereal diseases	Diagnostic	No venereal diseases	Total patients
Balance at end of current month			1												
Carried over from previous month			2												
Total additions current month	Cases new to this Center	Previous treatment	3												
		No previous treatment	4												
	Readmissions	Relapses	5												
		Reinfections	6												
		Post treatment observation	7												
Subtractions	Completed course treatment		8												
	Total patient days *		9												
	Others		10												
	Total days, all patients subtracted*		11												

**Do not count the day of discharge as a patient day*

Number syphilis patients requiring special diagnostic work preliminary to administering penicillin-fever schedules ____________

Number fever bouts administered during month ____________

Table 2. FINANCIAL AND COST REPORT

Total cost[a]	Total no. pat. days spent in Center this month[b] ______	Estimated cost per patient day

a - From "FINANCIAL STATEMENT" Line 22, "Total" Column 10, "Net Cost"
b - From Table 4, "DAILY CENSUS" (Reverse side)

Table 3. TOTAL NEW ADMISSIONS THIS MONTH

Color	Age (at last birthday)					
	Male			Female		
	Under 20	20-24	25 &over	Under 20	20-24	25 &over
White						
Non-white						

____
Signature Medical Officer in Charge

____
Report prepared by

DATE ____________
Month Day Year

CHECK COPY: St.H.D. ☐ Dist.Off. ☐ USPHS ☐ File ☐

Table 4 (Daily Census) on reverse side

the health department and by investigators thus would not contain any codes or coded matter.

To change reports in conformance with the changing emphasis in programs may also necessitate alterations in the basic record keeping of clinics and health departments. The Venereal Disease Division has report and record consultants who are available on request to assist State and local health departments in establishing their record and reporting systems. In States using mechanical tabulating units to compile reports, the Public Health Service will provide technical assistance for designing punch cards, procedures, and tabulations. Consultative assistance is also available to States which prefer to prepare tabulations without the aid of punch card equipment. Requests for assistance of this type should be made to the district directors of the Public Health Service.

It is not anticipated, or is it desirable, that health departments will restrict the collection of data to items included in required reports. For a progressive and vigorous control program, constant vigilance and continuing investigation into various technics and methods of control are necessary. Most investigations of this type will be of interest, not only to the State or local health department where the information originates, but nationally and internationally. Many State and city health departments are now submitting this type of information to the Venereal Disease Division. These data are analyzed and exchanged through the medium of the Monthly Statistical Letter published by the Division. Other more specialized information is becoming available through special studies and demonstrations, and will be disseminated through The Journal of Venereal Disease Information, special bulletins, and articles in the various other medical journals. Health officers and others interested in special studies or investigations into methods and technics of case finding may obtain from the Venereal Disease Division the services of statistical consultants who will assist in designing studies, developing methods of tabulation, analyzing data, and preparing the material for publication.

Blood Testing and Treatment Program in Jefferson County, Alabama

W. H. Y. Smith,[1] M. D., C. P. H., and George A. Denison,[2] M. D.

This is the second report on Alabama's legally required blood testing program for syphilis on all individuals between the ages of 14 and 50 years. It describes the program in Jefferson County, the ninth county in which universal blood testing has been tried, and the first having a predominantly urban population. The work has continued without interruption as described in the first report (*1*).

It was decided to defer blood testing in the more populous counties because of wartime personnel and material shortages. However, toward the end of March 1945, U. S. Public Health Service officials approached State and county health department representatives with the proposal to blood test the population of Jefferson County, which was the most populous county in the State and which contained the largest city. The proposal was accepted and the program was scheduled for the 42-day period, May 15 to June 30. For the first time in Alabama, blood testing, follow-up, and treatment were to be carried on simultaneously. Thorough epidemiologic follow-up with interviews and contact investigations was impracticable due to the large number of individuals who were expected to be found infected.

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[1] Director, Division of Venereal Disease Control, State Department of Health, Montgomery, Ala.

[2] Health Officer, Jefferson County, Birmingham, Ala.

Jefferson County has an area of 1,124 square miles and an estimated population of 480,000, 60 percent of which are white and 40 percent are Negroes. Out of this total population, 292,000 individuals were in the age group 14 to 50 years.

The experience gained in mass blood testing in the 8 other counties had established basic operating procedures and determined methods for insuring public response. The increased scope and volume of the work in Jefferson County required greatly enlarged resources of personnel and equipment and some modification of procedures. Procurement difficulties were almost insurmountable and often threatened complete disruption of the program.

Nine units were established to carry on the various phases of the program, each interlaced with and dependent on the others. Each unit had to operate within a set time limit and accomplish a certain volume of work before other units could function. All units and all plans led to a single objective—discovery and rapid treatment of early syphilis.

The units developed were (1) publicity and education, (2) primary blood testing stations, (3) auxiliary laboratory, (4) records and statistics, (5) routing and reviewing, (6) physician and telephone follow-up service, (7) personal interview and letter writing follow-up service, (8) secondary centers, and (9) rapid treatment center.

Publicity and education.—By April 9 the educational phase of the work had begun. One worker was assigned to promote and direct the activities in all labor groups, one was assigned in organizing women's groups, and a third individual visited large industries and assisted in developing education and publicity plans. The three daily, the three largest labor, two Negro, and several weekly newspapers, house organs, and other periodicals gave their unstinting and enthusiastic support through editorials, human interest stories, interviews, and straight news reporting. In the words of one newspaper man, the program was a "natural" because there were so many prominent visitors attracted to observe or to assist the program, who could be interviewed and photographed.

Two hundred framed street signs, 4 by 8 feet, depicting a crippled man and stating that "penicillin treats syphilis in nine days, get a blood test May 15th to June 30," were erected on lamp posts in all municipalities and at strategic locations in the rural districts. Signs on the fronts of street cars and in the advertising space inside brought blood testing to the attention of the streetcar-riding public. In the windows of stores throughout the county a series of three small posters was displayed. Ten thousand identical cards were set up and left in place for about 2 weeks.

More than 500,000 pieces of printed material were distributed, including 4 sets of 4-page folders specifically designed for the program. By the use of milk bottle collars, almost every quart of milk sold in the county for 2 consecutive days carried a blood test message to the people.

Women's groups banded together to form a corps of 1,100 house-to-house canvassers. They canvassed in advance of the blood testing machine, distributing literature which included information as to time and place for testing in each locality, and urging voluntary reporting for the test.

With the four local radio stations fully supporting the program, daily broadcasts explained the facts of syphilis and gonorrhea and urged cooperation; later this message was reinforced by advising the people to comply with the law. The churches, junior chamber of commerce, and labor unions supplied speakers for many of the radio programs. Religious support was represented also through messages about syphilis read from the pulpit or carried in church bulletins. More than 90 percent of the blood testing stations were located in religious buildings.

Primary blood testing stations.—To blood test the estimated 292,000 people required 370 stations served by 45 teams. The teams were set up as outlined in the first report (*1*). A fifth clerk was added in order to keep the numbered tubes in serial order and to prepare "accessions" sheets with the numbers in the same sequence.

Auxiliary laboratory.—The building of a laboratory in 8 days is a remarkable feat at any time, but constructed in wartime with most of the materials on the critical priority–required list, it becomes an astounding accomplishment. Since it was geared to examine more than 10,000 blood samples daily, this blood testing production line was nicknamed "Willow Run."

The Mazzini test was judged the most suitable for the particular requirements of this program. To perform these tests, the laboratory was divided into three distinct departments, each synchronized with the other two.

In the processing section a laboratory "batch number" was used to identify blood samples. The accession sheets were clipped to a cardboard and accompanied the batches of blood specimens through the processing and testing operations, while pink records were sent directly to the statistical section. At all times the specimens were kept in the numerical order of the accession sheets. Uncorking the tubes, freeing the clot, centrifuging at high speed, pouring into a clean tube, and inactivating in a water bath were the operations of this department.

Five teams of three technicians each comprised the testing department. Two of the workers on each team prepared the serums while the third read the reactions. All tests were recorded as positive, doubtful, negative, or unsatisfactory. A retest team rechecked "doubtfuls" and specimens containing red blood cells.

The three different types of glassware used in the laboratory operations had to be washed, cleaned, and dried. The cleaning section demonstrated coordinated efficiency in kitchen work.

Records and statistics.—After matching the laboratory reports, the results of the tests were recorded on the pink slips. The negative records were sent to the tabulating unit. A Form X (work sheet) was attached to positive, doubtful, and unsatisfactory reports, and before these were referred to the routing and reviewing section they were checked against a list of all venereal disease cases admitted to any clinic in the county since 1939. When the investigation was completed, these records were ready for tabulation.

Routing and reviewing section.—Since a second blood test was required on all except negative results or known infections, the records held for the second test were separated into the following categories: practicing physicians, telephone, letter, and visit. If a practicing physician had taken the blood sample or if the individual had given a telephone number, these records were sent to the "physician and telephone follow-up service." Otherwise, letters were written to individuals living in rural areas and to all Negroes over 30 years of age. Visits were made to all white persons and all Negroes up to 30 years of age who lived in an urban area.

Physician and telephone follow-up service.—Since practicing physicians drew blood from about 35,000 individuals, it was necessary to have a special contact service for doctors. Blood test certificate cards were not given to physicians. The pink serologic forms were completed by them except for the survey number. This was filled in when the blood reached the laboratory and the white card, indicating compliance with the law, was mailed to the individual.

The doctors were notified either by letter, telephone, or visit of the results of the test made on their patients, when the test was positive, doubtful, or unsatisfactory, and the individual was asked to report to the physician's office for a second blood test. If the patient was eligible for rapid treatment, the doctor was requested to release him so that a follow-up worker could contact the patient and persuade him to take the rapid treatment.

When a telephone number was given, whether urban or rural, the Form X was routed to the supervisor of telephones. If the patient could not be located, then the record was turned back to the routing section for reassignment. The use of the telephone is one activity which should be eliminated from future programs for the following reasons: (1) many people were not at home between 8:30 a. m. and 5 p. m.; (2) many were unable to remember instructions and as a result never reported to secondary centers; (3) the time involved to complete calls; (4) the awkward situation which often arose when a female worker telephoned a male patient, and the wife or mother answered.

Personal interview and letter writing follow-up service.—There were 25 workers for personal interview follow-up service and each one was assigned approximately 25 cases a day. When the individual was contacted, an appointment was made for him to appear at the nearest secondary center. If the person could not be interviewed, the record was referred to the letter writers.

Of all activities, the personal interview service came closer to disaster than any other. Untrained but energetic and enthusiastic workers from all over the country reported for duty in the midst of the program. With a mass of work already accumulated and workers in need of training before much follow-up could begin, utter confusion reigned for days. In a smaller community the mistakes that were made would have been ruinous, but the size of the population surveyed kept the effects of the errors so diluted that enough time was gained to bring order out of chaos. Untrained workers should never be employed in mass blood testing programs because of their indiscretions.

Secondary centers.—Three types of patients appeared at the secondary centers: (1) those who had a positive or doubtful blood test and whose treatment, if any, was insufficient; (2) those who had an unsatisfactory test; (3) those with gonorrhea. There were 10 secondary centers but gonorrhea was treated in only 6 of them.

Those persons who had unsatisfactory tests were routed directly to the blood taking team. Those who had positive or doubtful tests were interviewed by a nurse for medical history and the information obtained was noted on the back of Form X. If the history was sufficient to date the infection, the early or late classification was made. When the history was negative, infections in those persons 25 years of age and under were classified as early, and in those 26 years of age and over, as late syphilis.

A second blood specimen was taken, when necessary, from all persons at the secondary centers; in the case of a doubtful test at least a third test was taken before a tentative decision as to infection was made.

At each center a physician of the U. S. Public Health Service was in attendance. An attempt was made to examine all early cases but the large number presenting themselves at certain centers made this impracticable at times. All individuals with early syphilis, with no previous treatment or with less than 20 arsenical injections, were interviewed by medical-social workers to convince them of the need for rapid treatment. Physicians reviewed all records, verified the tentative diagnoses, and made the necessary recommendations.

Since a serologic dragnet of this type would miss primary seronegative syphilis, it was hoped that physical examination and the inclusion of gonorrhea in the control program would decrease the number of infections that would be missed.

Rapid treatment center.—With a maximum capacity of 190 beds in the existing rapid treatment center and an expected daily patient load of 900 during the time of the survey, ingenuity in planning for expansion was necessary. Established hospitals were unable to care adequately for even the normal sick load of the community, and except at the nearby Army Air Base there were no buildings available for use as temporary hospitals. Nine barracks buildings were made available through the interest and cooperation of the Commanding Officer and the Fourth Service Command. The scheme of treatment was 16,666 units of penicillin every 3 hours for 72 doses, accompanied by phenarsine hydrochloride every other day for 5 doses, and 1 cc. bismuth subsalicylate in oil on the first, fifth, and ninth day of treatment.

Presentation of data.—There were 271,775 people actually blood tested. Of these, 41,072 were shown to have, on the first test, either a doubtful or a positive

Mazzini test or an unsatisfactory report. Only 32,655 of these have, so far, been proved by repeated tests, examinations, or previous treatment to have syphilis.

In 3,075 the diagnoses have not been completed and in 1,174 the results have not been tabulated. There were 2,703 persons positive on the first test who have not, as yet, been located because of willful misrepresentation or carelessness in listing their addresses; 1,465 individuals whose first tests were positive or doubtful were subsequently proved to be not infected. Of this last group (table 1), 548 showed original positive, and 917 original doubtful tests. This gives a false positive rate for first test positives of 1.9 percent; for doubtfuls, 15.9 percent; for both positive and doubtfuls, 4.3 percent. Table 2 shows the final diagnoses for 264,823 individuals by age, sex, and race.

TABLE 1.—*The results of follow-up on all individuals who showed an original positive or doubtful blood test*

Disposition	Positive	Doubtful	Unsatisfactory	Total
Proved infected	27, 815	4, 840	0	32, 655
Diagnosis not complete or tabulated	2, 150	1, 414	685	4, 249
Unable to locate	1, 984	561	158	2, 703
Proved not infected	548	917	0	1, 465
Total	32, 497	7, 732	843	41, 072

TABLE 2.—*The results of the blood testing survey in Jefferson County for those individuals on whom a final diagnosis could be made by race, sex, and age*

Age (years)	White						Negro						Not stated		Total	
	Male		Female		Total		Male		Female		Total					
	Infected	Noninfected	Infected	Noninfected	Infected	Noninfected	Infected	Noninfected	Infected	Noninfected	Infected	Noninfected	Infected	Noninfected	Infected	Noninfected
Under 14	11	673	8	663	19	1, 336	25	339	32	311	57	650	2	----	78	1, 986
14	10	1, 607	9	1, 617	19	3, 224	52	908	56	1, 031	108	1, 939	----	1	127	5, 164
15	6	2, 469	11	2, 582	17	5, 051	73	1, 510	120	1, 674	193	3, 184	----	2	210	8, 237
16	11	2, 597	6	2, 622	17	5, 219	83	1, 436	125	1, 719	208	3, 155	----	2	225	8, 376
17	17	2, 677	15	2, 739	32	5, 416	113	1, 472	220	1, 636	333	3, 108	----	4	365	8, 528
18	15	1, 793	15	3, 121	30	4, 914	107	1, 346	268	1, 732	375	3, 078	----	2	405	7, 994
19	6	667	32	3, 140	38	3, 807	79	655	307	1, 554	386	2, 209	----	----	424	6, 016
20	8	661	33	3, 200	41	3, 861	87	550	362	1, 575	449	2, 125	----	5	490	5, 991
21	6	696	40	3, 133	46	3, 829	112	496	374	1, 341	486	1, 837	----	3	532	5, 669
22	11	689	42	2, 923	53	3, 612	107	494	440	1, 259	547	1, 753	----	5	600	5, 370
23	12	779	41	3, 002	53	3, 781	135	524	569	1, 429	704	1, 953	----	----	757	5, 734
24	11	847	46	3, 079	57	3, 926	151	492	509	1, 266	660	1, 758	----	1	717	5, 685
25	10	818	46	2, 897	56	3, 715	156	564	539	1, 248	695	1, 812	----	1	751	5, 528
26	23	931	58	2, 999	81	3, 930	213	541	611	1, 224	824	1, 765	----	2	905	5, 697
27	14	1, 022	46	2, 699	60	3, 721	224	551	641	1, 128	865	1, 679	----	1	925	5, 401
28	27	1, 240	49	2, 665	76	3, 905	214	547	567	1, 069	781	1, 616	----	----	857	5, 521
29	32	1, 416	74	2, 707	106	4, 123	302	642	602	1, 157	904	1, 799	----	2	1, 010	5, 924
30	36	1, 567	69	2, 597	105	4, 164	305	669	680	1, 156	985	1, 825	----	2	1, 090	5, 991
31	44	1, 871	62	2, 911	106	4, 782	369	760	711	1, 118	1, 080	1, 878	----	3	1, 186	6, 663
32	54	1, 787	74	2, 620	128	4, 407	349	683	654	1, 015	1, 003	1, 698	----	1	1, 131	6, 106
33	59	1, 845	61	2, 623	120	4, 468	398	726	727	1, 112	1, 125	1, 838	----	5	1, 245	6, 311
34	63	1, 825	71	2, 481	134	4, 306	366	679	594	993	960	1, 672	----	6	1, 094	5, 984
35	52	1, 845	83	2, 640	135	4, 485	515	852	789	1, 243	1, 304	2, 095	----	2	1, 439	6, 582
36	65	1, 940	77	2, 456	142	4, 396	435	664	603	1, 068	1, 038	1, 732	----	5	1, 180	6, 133
37	62	1, 929	74	2, 554	136	4, 483	374	713	578	1, 011	952	1, 724	----	1	1, 088	6, 208
38	59	1, 962	91	2, 563	150	4, 525	433	785	675	1, 219	1, 108	2, 004	----	----	1, 258	6, 529
39	63	1, 990	68	2, 387	131	4, 377	452	765	628	1, 080	1, 080	1, 845	----	3	1, 211	6, 225
40	78	2, 074	84	2, 541	162	4, 615	564	1, 014	661	1, 238	1, 225	2, 252	1	3	1, 388	6, 870
41	74	2, 088	61	2, 134	135	4, 222	491	862	442	818	933	1, 680	----	5	1, 068	5, 907
42	78	2, 074	78	2, 180	156	4, 254	428	800	440	933	868	1, 733	----	1	1, 024	5, 988
43	68	2, 033	56	2, 080	124	4, 113	515	982	532	953	1, 047	1, 935	----	1	1, 171	6, 049
44	56	1, 741	28	1, 713	84	3, 454	351	582	345	672	696	1, 254	----	2	780	4, 710
45	100	2, 101	72	2, 559	172	4, 660	706	1, 392	666	1, 548	1, 372	2, 940	----	5	1, 544	7, 605
46	58	1, 533	44	1, 632	102	3, 165	266	621	265	597	531	1, 218	----	1	633	4, 384
47	76	1, 809	44	1, 809	120	3, 678	327	654	293	663	620	1, 317	----	1	740	4, 996
48	49	1, 645	39	1, 488	88	3, 133	377	704	305	722	682	1, 426	----	1	770	4, 560
49	69	1, 535	45	1, 464	114	2, 999	390	758	268	621	658	1, 379	----	2	772	4, 380
50	30	1, 058	31	964	61	2, 022	264	581	225	570	489	1, 151	----	----	550	3, 173
Over 50	89	2, 472	22	1, 554	111	4, 026	306	1, 006	173	585	479	1, 591	----	----	590	5, 617
Unknown	10	559	16	934	26	1, 493	101	335	198	542	299	877	----	6	325	2, 376
Total	1, 622	62, 865	1, 921	94, 732	3, 543	157, 597	11, 315	30, 654	17, 794	43, 830	29, 109	74, 484	3	87	32, 655	232, 168

It should be noted that the rate of infection for the white group (chart I) was 2.19 percent; for the Negro, 28.07 percent; for both races, 12.33 percent. However, these rates exclude the 6,109 persons on whom diagnoses have not been completed. Of these, 4,134 had positive first tests while 1,975 had a doubtful reaction. If these numbers are reduced by excluding the anticipated percentage of false (positive and doubtful) tests and the remainder added to the infected group, the corrected rates would be: white, 3.07; Negro, 30.86; both races, 14.16 percent.

Figure I charts for each age the percentage of total infections, primary and secondary infections, and early latent infections. The small figures show the accumulated percentages. The peak in primary and secondary infections is reached at 18 years of age, with 8.6 percent of these occurring at that age. Twenty percent of all primary and secondary syphilis found occurred at or before 18 years of age. For early latent syphilis the peak is reached at 23 years.

Ninety percent of primary and secondary syphilis and 87 percent of early latent syphilis were found in persons 35 years of age and under. Therefore, the majority of all early infections would have been found if blood testing had been limited to 35 instead of 50 years of age. This would be a useful procedure for communities whose finances are limited, but narrowing the age group would, perhaps, lessen popular response and place undesired emphasis on the relation of the problem to sex.

When all cases of early syphilis are distributed by age, race, and sex it is found that the higher prevalence among female individuals occurs between the ages of 19 and 26 years, with the peak prevalence for the white female at 21 to 25 years, and for the Negro female at 23 years (fig. II). Beyond the age of 33 years, relatively few cases of early syphilis were found in the female. Early cases among white men show a peak prevalence at 17 years of age, with other high points at ages 29 and 34 years. For Negro men peaks occur at ages 17 and 25 years. The absence of men of military age probably accounts for the different distribution between the two sexes. Furthermore, the influence of age in the classification of

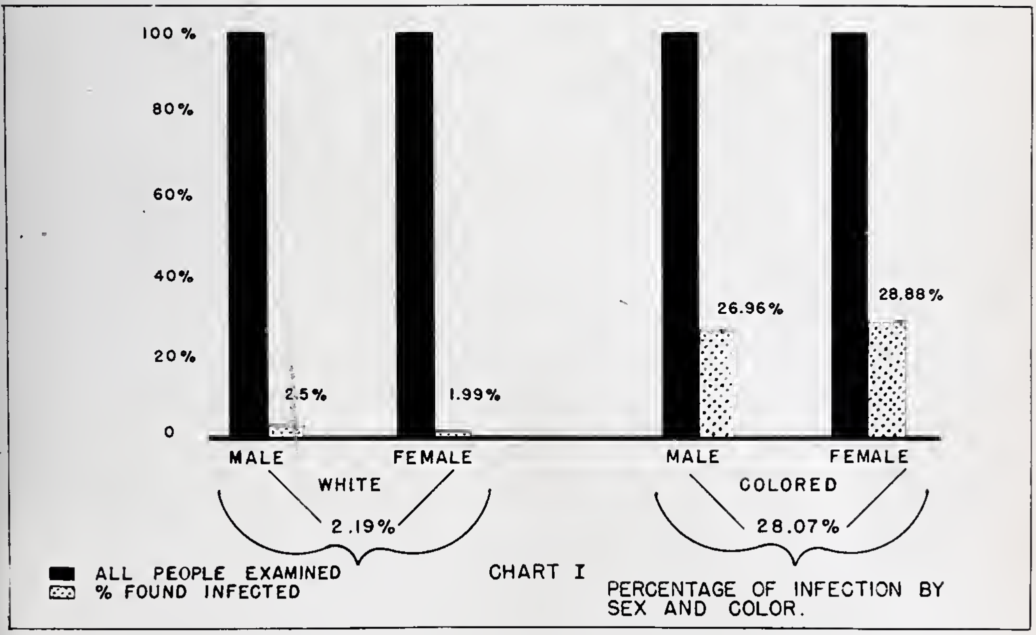

CHART I

PERCENTAGE OF INFECTION BY SEX AND COLOR.

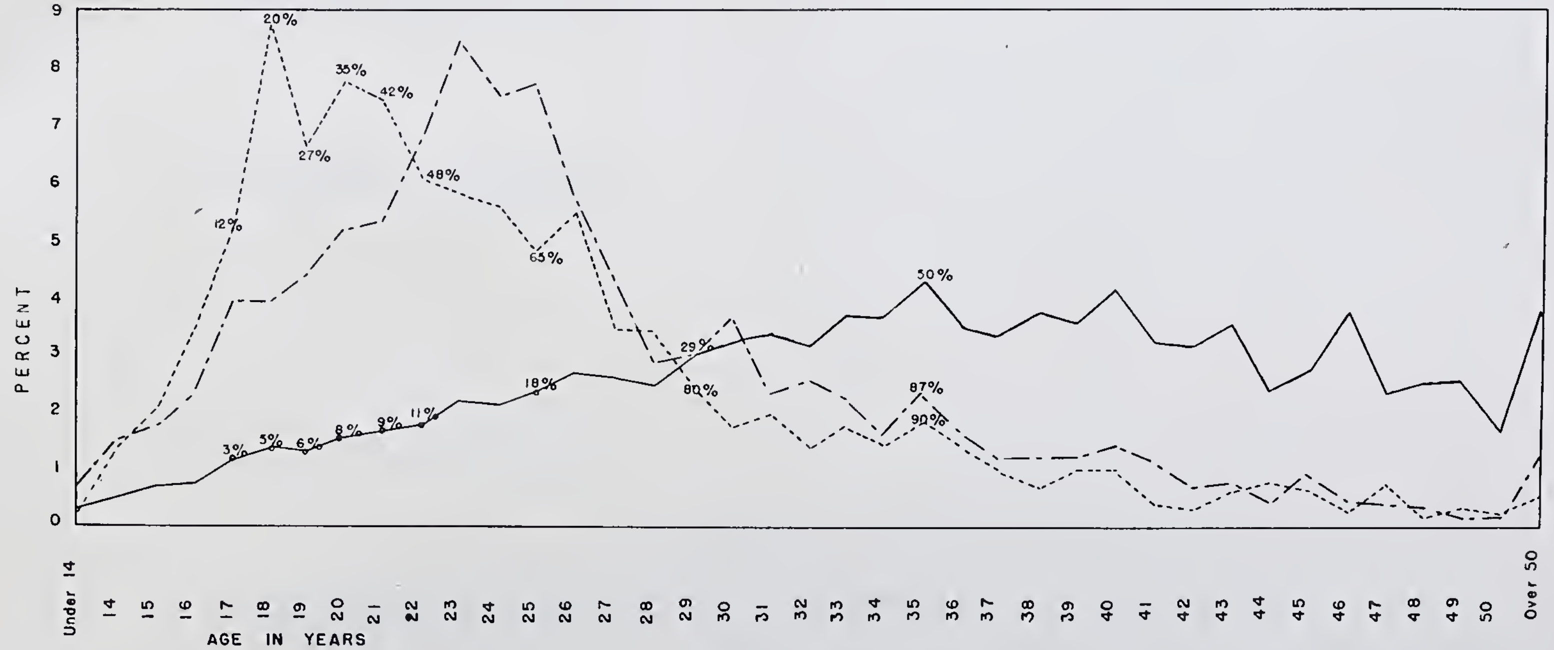

FIG. I

THE PERCENTAGE OF PRIMARY & SECONDARY, EARLY LATENT, AND TOTAL INFECTIONS BY AGE.

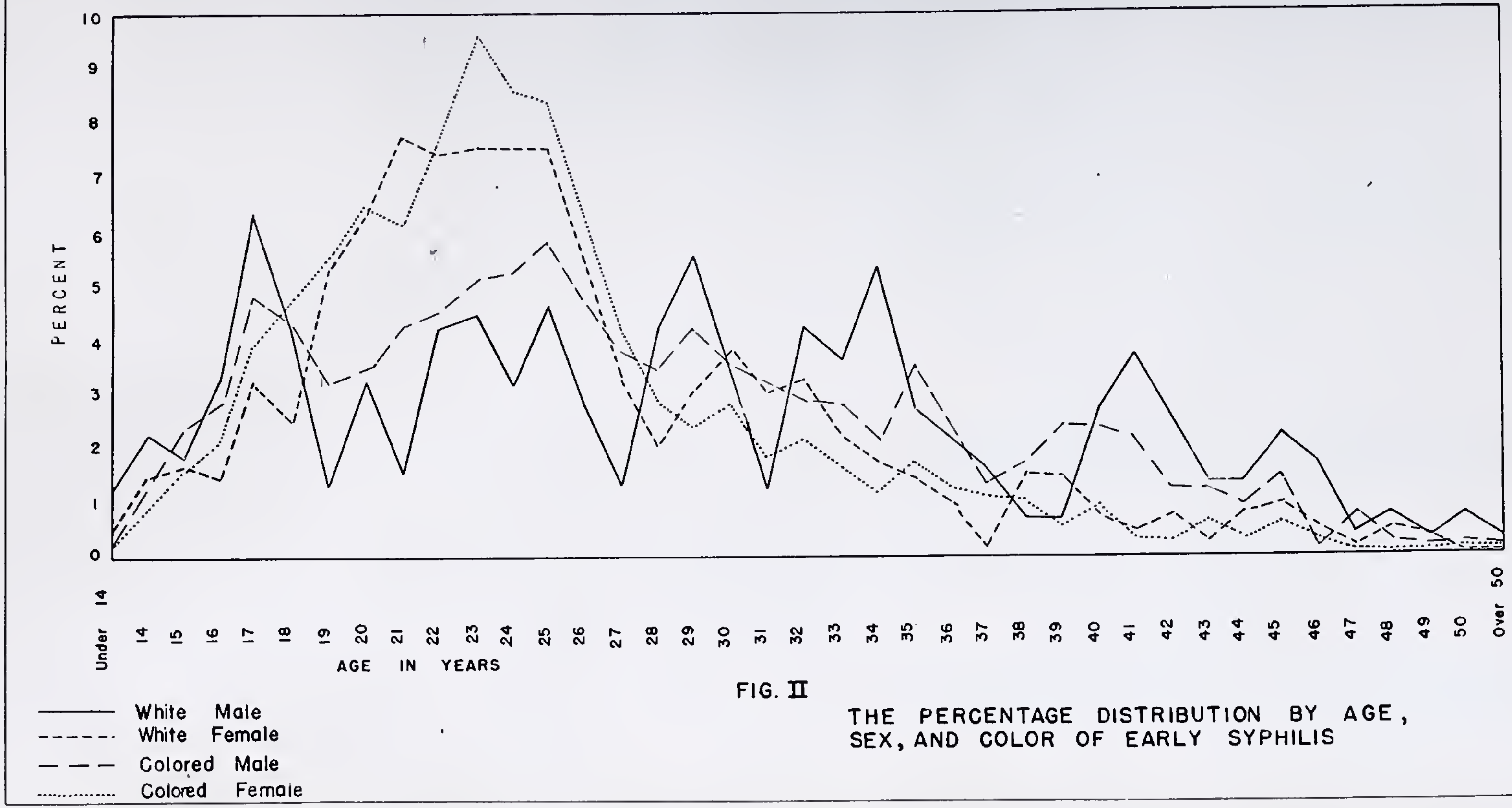

FIG. II

THE PERCENTAGE DISTRIBUTION BY AGE, SEX, AND COLOR OF EARLY SYPHILIS

syphilis in individuals in whom the time of infection is unknown probably exaggerates the high incidence among female persons in the group under 26 years of age.

The average number of cases of syphilis reported for the months of May and June for the 3 years previous to the survey was 111 primary and secondary, and 272 early latent. This means that during the 42 days of blood testing, 5 times as many primary and secondary cases, and 15 times as many early latent cases of syphilis were found as would normally have been reported.

Table 3 shows the stage of infection for proved cases of syphilis found during the survey and classifies them as (1) those previously known, and (2) those previously unknown.

TABLE 3.—*Distribution of proved syphilis by stage*

Stage of infection	Previously known to health department [1]		Unknown to health department	Total
	Untreated or some treatment	Discharged after maximum benefit		
Primary	59	33	120	212
Secondary	78	26	449	553
Early latent	2, 459	413	4, 212	7, 084
Late latent	10, 199	254	12, 725	23, 178
Cardiovascular	86	8	3	97
Central nervous system	85	4	16	105
Other late	88	2	15	105
Congenital	140	9	216	365
Not stated	84	791	81	956
Total	13, 278	1, 540	17, 837	32, 655

[1] Diagnosis at time of reporting.

The category "previously known" includes those already known to health department, industrial, and hospital clinics, and to private physicians. The reporting of cases by private physicians with adequate identification of the patient is incomplete. Furthermore, previously known cases are classified on the basis of the stage of the disease at the time of diagnosis and an unknown number of early cases had obviously progressed to late latent by the time of the survey. The diagnoses of "cases previously unknown" are current.

Despite these inconsistencies, certain conclusions are obvious: 54.6 percent of all the syphilis uncovered by this survey was unknown; 59.5 percent of the early latent syphilis that was brought to light was previously unknown. Of the infections discovered, 73.2 percent were diagnosed as late syphilis. There were 120 cases of primary, 449 cases of secondary, and 4,212 cases of early latent syphilis previously unknown and current in the population at the time of the survey.

Of the 7,849 known and unknown cases of early syphilis, 2,673 were referred to industrial and health department clinics, 1,615 to private physicians, and through August 1, 3,231 cases of early syphilis were treated at the rapid treatment center. Chart II shows graphically the disposition of untreated and not previously known early syphilis. It can readily be seen that the majority of primary and secondary cases was referred to the rapid treatment center, but in early latent syphilis only 58 percent was referred for this type of treatment. This reflects the greater difficulty in conveying the need for rapid therapy when there are no objective signs. Among the white patients, 7.1 percent of early syphilis was treated at the rapid treatment center as compared with 92.9 percent among the Negro.

Conclusions.—1. The Jefferson County, Ala., survey demonstrates that a very large proportion of a population aged 14 through 50 years will voluntarily submit to blood testing when subjected to a broad educational program in conjunction with the law.

2. Twelve times as much early syphilis was found as a result of the survey as would normally have been reported. The number of infections brought under treatment could not have been accomplished in years of routine health department work.

3. Mass blood testing with follow-up and treatment, when applied to an urban population with a high infection rate, has

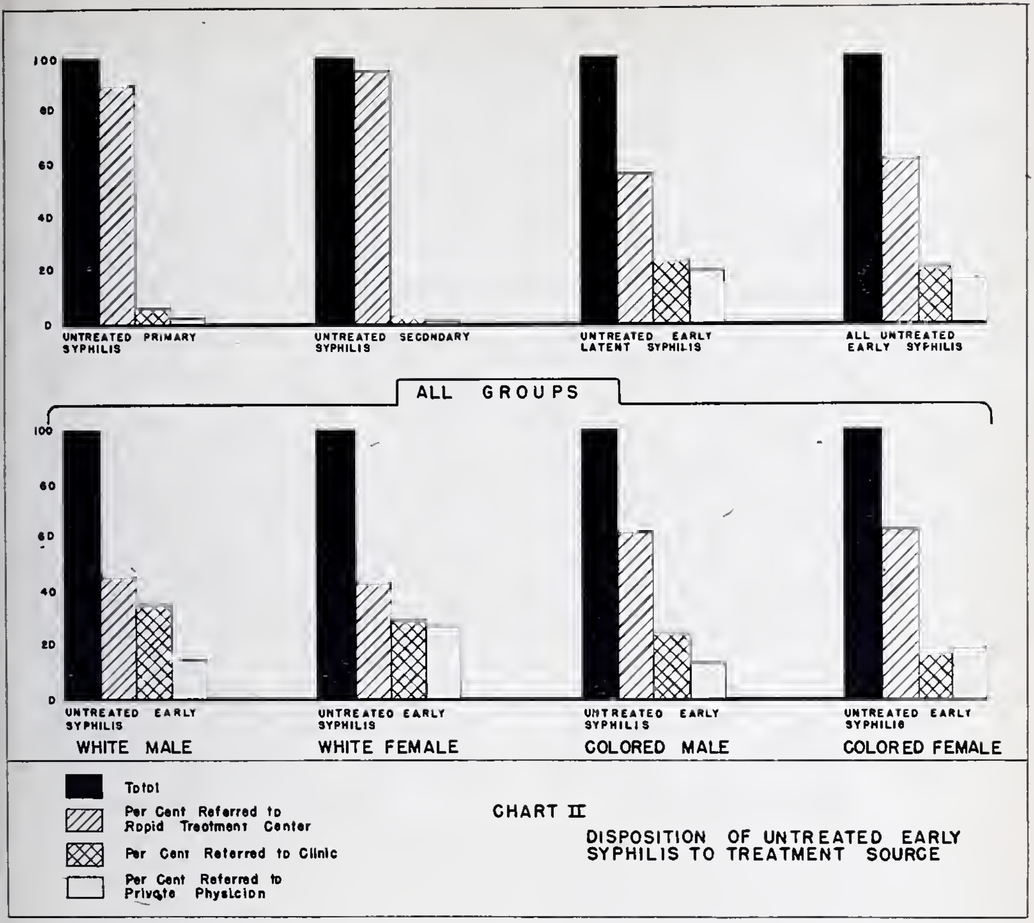

CHART II
DISPOSITION OF UNTREATED EARLY SYPHILIS TO TREATMENT SOURCE

proved fruitful in removing much early syphilis from the community and temporarily, at least, has made a material inroad in the total problem of syphilis control. It also offers an opportunity for retesting those known to have received treatment previously.

4. No yardstick is available to measure accurately the full value of universal blood testing. Probably the gains can be permanently held only if continued and if conventional means of control are maintained at a high level. Repetition of surveys at 3-year intervals for the 14- to 35-year age group would seem worthy of consideration.

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The authors wish to express their appreciation to all the participants who so untiringly and unstintingly worked to make the program a success, especially to the community leaders and to the State and Federal purchasing officers who made the work possible through their resourcefulness in purchasing scarce commodities.

Studies on Chancroid. III. Ducrey Skin Reactions in Negro Hospital Patients[1]

Albert Heyman, M. D., and Paul B. Beeson, M. D.

Although the skin test is widely employed as a diagnostic procedure in suspected cases of chancroid, there is little information available regarding the frequency of positive reactions in the population as a whole. Various workers have reported a comparatively high incidence of positive tests among patients with other venereal diseases (*1, 2*). Robinson (*3*) tested a group of hospital patients and noted that none of 11 children reacted positively, but that 23 of 84 adults showed a positive test. The number of cases in his series was relatively small, and the results were not given by age groups. We are reporting the results of Ducrey skin tests on 473 Negro hospital patients in Atlanta.

METHOD OF STUDY

The tests were carried out on patients on the medical, surgical, and pediatric services of Grady Memorial Hospital. Gynecologic patients were not included because the high incidence of pelvic inflammatory disease in this group increased the likelihood of their having been exposed to chancroid. Other than this, no selection of cases was exercised.

The test material was a commercial vaccine (Lederle). One-tenth cubic centimeter was injected intradermally into the volar surface of the forearm, and the reaction was read after 48 hours. The development of an area of induration of 6 mm. or more in diameter was regarded as positive.

No attempt was made to obtain a history of chancroid or to demonstrate existing infection among the subjects tested.

RESULTS

The results of the skin tests in 473 Negro patients are arranged according to age and sex in tables 1 and 2. There were 257 males and 216 females; 87 were children between the ages of 2 and 14 years. It is significant that none of the patients under 14 years of age showed a positive Ducrey reaction. Positive reactions began to appear in individuals between the ages of 15 and 24 years. The incidence rose in succeeding decades, but declined slightly in individuals older than 55 years of age.

Excluding the 87 children, positive skin reactions were obtained in 114 of the 386 adults (29.5 percent). It should be noted that positive skin reactions occurred more frequently in female than in male patients in the age groups between 15 and 24 years.

TABLE 1.—*Incidence of positive Ducrey skin tests in Negro males, according to age*

Age group (years)	Number tested	Number positive	Percent positive
0–4	19	0	0
5–9	18	0	0
10–14	17	0	0
15–19	17	0	0
20–24	14	1	7.1
25–34	46	11	23.8
35–44	40	16	40.0
45–54	50	22	44.0
55+	36	13	36.1

TABLE 2.—*Incidence of positive Ducrey skin tests in Negro females, according to age*

Age group (years)	Number tested	Number positive	Percent positive
0–4	11	0	0
5–9	13	0	0
10–14	10	0	0
15–19	21	4	19.1
20–24	34	6	17.6
25–34	37	16	43.2
35–44	39	16	41.0
45–54	31	7	22.6
55+	20	4	20.0

From the Department of Medicine, Emory University School of Medicine, the Clinic for Genitoinfectious Diseases, Grady Hospital, and the Georgia Department of Public Health, Atlanta, Ga.

[1] Aided by a grant from the Venereal Disease Division of the U. S. Public Health Service.

COMMENT

The high incidence of positive Ducrey skin reactions in Negro adults is striking and suggests that the test may be nonspecific in this race. The fact that positive reactions were not found in children is evidence against this possibility. In both Robinson's study and our own, positive skin tests were absent in Negro children, but were present in more than one-fourth of the adults.

The age distribution of positive Ducrey tests in this study is approximately the same as the age distribution of syphilis, gonorrhea, and lymphogranuloma venereum (*4, 5*). The appearance of positive skin tests at an earlier age in females has likewise been noted for other venereal disease infections (*4, 5*).

It has been observed that positive skin tests for chancroid occur more often in patients with syphilis than in those without syphilis (*3*). The records of 114 patients in this series who gave positive Ducrey reactions were examined, and the results of serologic tests for syphilis were available in 107 instances. Sixty-two of the 107 cases (57.9 percent) were found to have serologic evidence of syphilis. Our findings agree with those obtained by other workers and indicate that combined venereal disease infections are common. Syphilitic infection apparently does not induce false positive Ducrey reactions, since all of 10 children with congenital syphilis had negative skin tests.

The foregoing evidence that the age incidence of development of positive Ducrey skin reactions corresponds with the period of greatest sexual activity suggests that the reaction is a specific one. On the other hand, the number of persons giving positive reactions is far higher than could be accounted for by the incidence of recognized chancroid in the same population. It is possible, however, that subclinical chancroid infections are relatively common, as is the case with many other infectious diseases. It is also possible that positive skin reactions may result from the presence of Ducrey bacilli on normal genitals. Saelhof (*6*) and Brams (7) found this organism in smegma and vaginal secretions of individuals without chancroid infection.

An interesting finding in this work was the considerable number of positive Ducrey skin reactions in elderly persons. It is most unlikely that all of these persons had recently been exposed to venereal disease infection. This study indicates, therefore, that the skin reactivity, once acquired, is retained for many years afterward. Persistence of the causative agent in or on the body of the host long after the initial infection is one possible explanation. An alternative is, of course, that a positive reaction may develop in response to other stimuli in addition to chancroid infection. Whatever the true answer, the long duration of skin reactivity constitutes a serious drawback in clinical application of the test.

SUMMARY

Ducrey skin tests were done on 473 Negro hospital patients. It was found that 29.5 percent of adults showed positive skin reactions, while none of 87 children reacted positively. Positive skin reactions began to appear in individuals between the ages of 15 and 24 years. The incidence then rose in succeeding decades, but declined slightly in patients older than 55 years. Positive skin tests occurred at an earlier age in female than in male patients and were more common in syphilitic than in nonsyphilitic individuals. The considerable number of positive reactions found in individuals belonging to the older age groups indicates that the skin reactivity remains for many years after its development. The presence of positive skin reactions in more than one-fourth of the Negro population in this vicinity limits the diagnostic usefulness of this test to a considerable degree.

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Bowen's disease of penis: Late latent syphilis (treated). Society Transactions. James Strauch and S. Colimodio. 52 : 413, Nov.–Dec. 1945.

Postsyphilitic dyschromia: Late dyschromic pinta? (treated). Society Transactions. James Strauch and G. W. Binkley. 52 : 415–416, Nov.–Dec. 1945.

Intensive arsenotherapy of early syphilis.—The author reviews the literature and presents the results of ambulatory intensive methods of treatment with arsenicals for early syphilis.

In a period of 15⅔ weeks, 210 patients with early syphilis received 20 injections of oxophenarsine hydrochloride (mapharsen), followed by 8 injections of bismuth, succeeded by 10 or more arsenical treatments. An analysis of the 63 cases completing treatment is given. Reactions necessitated the discontinuation of treatment in 7 patients. The author reports that the end results of this intensive plan are satisfactory and adaptable for private practice and clinics, but that case holding presents the greatest problem.

The institution of the 8-week Eagle plan of intensive therapy is described. Three hundred and fifty-two patients were given 3 injections of mapharsen and 1 injection of bismuth subsalicylate a week for 8 weeks. "Good results" are reported for 75 percent of the 109 patients who completed treatment. Treatment was discontinued for 8 patients, with no fatal reactions occurring. The author observes that the rate of reversal has paralleled the quantitative titer present at the time treatment was begun. The author's experience indicates that the prognosis depends on the duration of the disease; that patients with clinical or serologic failure should have further intensification of treatment if rapid methods are employed; and that the suitability of early latent syphilis cases for intensive methods of treatment is questionable.

The author suggests a shorter plan of therapy—mapharsen (750 to 1,000 mg.) over an 8- to 10-day period, plus larger doses of bismuth—as possibly solving the difficult case-holding problem. Combinations with penicillin are also recommended. The value of bismuth in intensive systems of arsenotherapy is also discussed.

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Accidental intra-arterial injection of oxophenarsine hydrochloride (mapharsen). Edmund N. Walsh and J. Lanier Wyatt. 129: 1255, Dec. 29, 1945.

Antitoxic action of penicillin. 129: 1263, Dec. 29, 1945.

*Malaria therapy in syphilitic primary optic atrophy. Walter L. Bruetsch. 130: 14–18, Jan. 5, 1946.

Administration of penicillin by mouth with results in the treatment of gonorrhea.—The authors review the numerous attempts which have been made to ad-minister penicillin effectively by mouth. It is stated that there are three variables in the problem of the absorption of penicillin, (1) destruction by gastric acidity, (2) rate of absorption by the upper bowel, and (3) destruction of penicillinase-producing organisms in the bowel.

This paper describes the search for a satisfactory means of administering penicillin by mouth, which revealed several combinations producing low but measurable blood levels of penicillin and which cured gonorrhea, such as mixtures of penicillin with triisopropanolamine, trisodium citrate, or sodium carbonate enclosed in a resin-cellulose plastic enteric coating. In the study described, 191 single trials of penicillin in various combinations were made on 75 persons. Multiple doses, usually 10, with 12 different general types of combinations were given in 77 trials on patients, most of whom had gonorrhea.

In an attempt to assess the importance of gastric acidity in the destruction of penicillin, 10 persons, the majority of whom had pernicious anemia, were given 50,000 units of the drug, but it was not until adjuvants were added that blood levels could be determined.. These averaged 0.06 unit per cubic centimeter after 1 to 1½ hours. An extensive survey was also made of penicillin in combination with various enteric coatings in normal persons or patients without gastric achlorhydria, the usual dosage of penicillin being 50,000 units. Detailed results are given in the use of penicillin without adjuvant or enteric coating; mixtures not in capsules; penicillin in enteric coated capsules, with adjuvant given separately; and penicillin with adjuvants in capsules, usually enteric coated. Fifty-three cases of acute gonorrhea were treated with several of the most promising combinations, with cures in 38 (72 percent).

Diagnosis of chancroid. The relative efficiency of biopsies, cultures, smears, autoinoculations, and skin tests.—This paper is a report on the relative efficiency and usefulness of various procedures in diagnosing chancroid.

A positive diagnosis of chancroid was made in 60 of 125 cases of suspected chancroid or lymphogranuloma venereum studied. The authors report biopsy as appearing to be the most efficient single method of diagnosis and as dependable in over 90 percent of the cases in which it is applicable. With its use limited to cases in which there is a primary genital lesion, biopsy is well suited to outpatient work, but it is undesirable in patients with small lesions because of the pain involved.

Although cultural demonstration of the Ducrey bacillus is less likely to be successful in advanced lesions heavily contaminated with other bacteria, it can be accomplished in 75 percent of all cases. Cultural demonstration is reported as the only means of positively diagnosing patients with buboes but without primary lesions.

Diagnosis is possible through direct smears of the genital lesions in approximately 50 percent of cases. This method is simple and affords immediate diagnosis. However, a heavy growth of other bacteria make it likely to be useless in advanced lesions.

Autoinoculation has several disadvantages and does not prove valuable in routine work as it does not take with sufficient frequency.

Disadvantages of the skin test are reported, among them its unreliability as the sole method of diagnosis. However, it may be a valuable adjuvant. In the group of 60 proved cases of chancroid, positive skin tests were found in only 46 (77 percent).

The authors comment that no one diagnostic method for chancroid can be applicable in all cases and that the diagnostic procedure employed must be appropriate for each individual case.

The treatment of early syphilis with penicillin.—This is an account of the treatment with penicillin of 96 patients (92 men and 4 women), of whom 29 were white and 67 Negro, varying in age from 18 to 38 years. Lesions of primary or secondary syphilis were present in every case, the diagnosis being established in 89 patients by the presence of Treponema pallidum in the lesions, and in the other 7 by repeatedly positive serologic tests for syphilis.

All patients were hospitalized and given 60 intramuscular injections of 20,000 units of penicillin in 1 cc. of saline solution at 3-hour intervals, day and night, for 7½ days, a total of 1,200,000 units. A Herxheimer reaction occurred in 91.6 percent of the patients during the first day of treatment, consisting of fever, chill, headache, and malaise. A number of mild reactions were observed after the first day of treatment, such as nausea, mild urticaria, and pruritis without eruption, but in no case was it necessary to suspend treatment on account of reaction.

Darkfield examinations were repeated at 3-hour intervals after the onset of therapy in 26 patients with suitable lesions, but treponemes could not be demonstrated after periods of 3 to 15 hours, and in a majority of instances after 9 hours. Chancres and mucous patches, unless exceptionally large and deep, healed and disappeared usually by the time treatment was finished.

Eight cases relapsed, 7 of them patients with secondary syphilis, and 1 a patient with seronegative primary syphilis. Six of the eight relapses occurred during the fourth month of observation, 1 during the sixth month, and 1 at about 13 months after treatment. Seventy percent of the patients were observed for a year or longer. Among 89 patients whose spinal fluid was reexamined after treatment, abnormalities were found in only 3, all of whom had developed serologic or clinical relapse in the fourth month.

The incidence of observed relapse, 1 in 53 patients with seronegative and seropositive primary syphilis, and 7 in 43 patients with secondary syphilis, indicates that the treatment was adequate for primary syphilis, but inadequate for secondary syphilis, for which an optimum treatment schedule must yet be worked out.

Malaria therapy in syphilitic primary optic atrophy.—The use of malaria therapy is discussed with reference to a study of 250 patients at Johns Hopkins Hospital, in which this treatment gave most gratifying results.

It is stated that the pathologic basis of syphilitic optic atrophy is more like the process of dementia paralytica than of tabes, in opposition to the prevalent misconception that this condition is merely another variety of the tabetic process. In the use of malaria therapy, one of the more important effects is the arresting of the inflammatory phase of the neurosyphilitic process. There is evidence that the activation of the mesodermal tissue, which is produced by the malaria plasmodia and not by the elevated temperature, is responsible for the cessation of the inflammatory reaction. Malaria therapy, besides changing the tissue immunity, inhibits the inflammatory element of syphilitic optic atrophy, and the degeneration of the nerve fibers ceases. Since the inflammatory process usually advances from the periphery toward the interior, enough normal tissue of the central portion of the nerve is left for useful vision. As to therapeutic results, for 3 years following malaria therapy slow progression of failure of vision may continue, but in patients who react favorably to this treatment, the concentric constriction of the visual fields will gradually expand, evidencing a capacity for recovery of partially damaged nerve fibers.

It is stated that while the giving of penicillin concomitantly with malaria may enhance the anti-inflammatory action of malaria therapy, penicillin alone would be hazardous. In the treatment of dementia paralytica, penicillin does not equal malaria in efficacy, which would probably hold true in cases of syphilitic optic atrophy as well.

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Are current verification tests of practical value in the serodiagnosis of syphilis? Charles R. Rein and Elizabeth S. Elsberg. 6: 113–127, Apr. 1945.

Clinical and laboratory investigation of 370 cases of chancroid.—A report is made on 370 patients having chancroidal infections studied in order to evaluate the diagnostic importance of cultural methods and smears for H. ducreyi, the usefulness of the Ito-Reenstierna skin test, the incidence of parallergic reactions to Frei antigen, and the incidence and significance of biologic false positive serologic reactions for syphilis. Also, an evaluation of treatment with the sulfonamides, penicillin, and fever-chemotherapy was instituted, and an attempt was made to correlate the duration of the infection with the healing time of the lesion.

Among the 370 cases studied, 211 patients had single chancroidal lesions, while 159 had multiple lesions. Left and right inguinal nodes were involved in 126, the left nodes in 132, and the right nodes in 63 cases, and no involvement was found in 39 cases.

Positive cultures were obtained in 219 cases and H. ducreyi was demonstrated only on smears in 159 cases of the 370 studied. The Ito-Reenstierna test was read in all but 25 cases with the following results: 256 positive, 36 doubtful, and 53 negative. In the absence of previous historical or clinical findings for lymphogranuloma venereum, the 31 positive and 18 doubtful reactions to Frei antigen were interpreted as coreactions on a parallergic basis.

Of the 163 patients having chancroidal lesions but no evidence of syphilis, history of syphilis, or previous antisyphilitic treatment, 21 patients had a positive Kahn reaction. Titers as high as 40 units were observed, but with clinical improvement of the lesion the titer declined and finally became negative.

Three types of treatment were given. Sulfathiazole was administered orally to 278 patients, with sulfanilamide powder applied locally to all lesions. The lesions healed in less than 10 days in 108 cases, 10 days in 144 cases, and 26 cases required more than 10 days' treatment. Intensive fever-chemotherapy was given to 67 patients having primary or secondary syphilitic lesions which were also infected with H. ducreyi. The lesions were healed within 3 days in 23 patients, 7 days in 7 patients, and from 7 to 9½ days in 4 patients. Additional sulfathiazole therapy was required for the remaining 33 patients. Twenty-five patients having primary or secondary syphilis, treated with penicillin, had an accompanying chancroidal infection. Three hundred thousand units of penicillin were administered to 10 patients and 600,000 units of penicillin were given to 15 patients over a period of 7½ days. Small lesions healed within 7½ days, but 5 cases needed additional sulfathiazole treatment. No relation between duration of the lesions and healing time could be observed.

The authors state, in conclusion, that there is no reliable method for diagnosing chancroid; there are definite limitations to the diagnostic value of the Ito-Reenstierna test; the biologic false positive test for syphilis in uncomplicated chancroidal infections is significant; antisyphilitic therapy should be withheld until the presence of syphilis is established, if T. pallidum cannot be found in the lesions or if a rising titer is observed; sulfonamides are the treatment of choice for chancroidal lesions; the influence of fever alone on the lesions is of interest; and the effect of penicillin is difficult to estimate.

Various tables and a critical discussion are presented.

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*Penicillin in the treatment of congenital syphilis. E. E. Wilkinson, W. H. Saunders and A. E. Hanson. 41 : 401–404, Dec. 1945.

Penicillin in the treatment of congenital syphilis.—This is a preliminary report on 29 infants and children with congenital syphilis treated by penicillin. Two types of patients were treated, (1) those with early congenital syphilis, previously untreated, whether clinical manifestations were present or not, and (2) those with late congenital syphilis, treated or untreated, but with definite clinical manifestations. The first group received 20,000 O. u. per kilogram of body weight, given in 60 intramuscular injections every 3 hours for 7½ days. The second group received a total dosage of 20,000 to 60,000 units per kilogram over a period of 10 to 20 days. The quantitative Kolmer complement fixation test was used for all patients.

The most satisfactory results were obtained in cases of early congenital syphilis with manifest symptoms, in which skin eruptions healed within 24 to 48 hours after therapy, and lesions disappeared by the end of the 7½ days of treatment. In patients with asymptomatic early congenital syphilis, no clinical evaluations were of course possible, but a gradual decrease in the titer of the blood was observed in 3 of 4 patients.

In late congenital syphilis, interstitial keratitis seemed to be definitely improved in 4 of 6 cases, but in the children with neurosyphilis who were suffering from juvenile paresis, no changes in serologic tests or clinical improvement was noted. One girl with hydrarthrosis of one knee developed a similar condition in the other knee, and 5 days after the second course of penicillin a typical interstitial keratitis appeared.

In spite of the favorable results observed in cases of early manifest syphilis, it is stated that the over-all effectiveness of penicillin in the treatment of congenital syphilis leaves much to be desired. The most logical method of attacking the problem of congenital syphilis is its prevention by the diagnosis and treatment of syphilis in the pregnant woman.

Cases of Syphilis and Gonorrhea Reported for the First Time in States, Territories, and Possessions for the Year 1945

Area	Syphilis										Gonorrhea	
	Total[1]		Primary and secondary		Early latent		Late and late latent		Congenital			
	Dec.	Jan.–Dec.	Dec.	Jan.–Dec.	Dec.	Jan.–Dec.	Dec.	Jan.–Dec.	Dec.	Jan.–Dec.	Dec.	Jan.–Dec.
Alabama	1,087	10,688	166	1,700	278	2,565	274	2,576	40	339	965	9,410
Arizona	76	1,461	29	407	18	435	26	529	3	87	97	1,243
Arkansas	642	14,611	168	4,157	250	5,100	181	4,320	43	601	499	7,422
California	1,647	29,355	361	5,411	445	7,576	769	14,368	36	755	2,141	27,676
Colorado	162	2,326	55	699	53	586	45	958	9	83	121	2,155
Connecticut	115	2,279	21	299	38	582	35	1,056	5	65	81	1,309
Delaware	25	398	14	125	6	120	2	86	-------	23	7	154
District of Columbia	182	3,396	55	784	61	1,142	51	1,257	12	96	427	6,295
Florida	594	16,034	143	2,428	255	6,687	140	5,210	20	487	660	13,973
Georgia[4]	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Idaho	36	772	15	149	8	210	8	324	1	28	43	584
Illinois	1,966	21,475	401	4,019	595	5,371	929	11,509	41	576	2,343	25,369
Indiana	337	5,801	82	1,168	29	646	101	1,966	5	153	190	2,715
Iowa	110	1,337	44	335	35	403	21	459	3	53	159	2,249
Kansas	106	2,131	41	463	17	441	48	1,132	-------	95	176	2,331
Kentucky	490	5,123	193	1,763	142	1,321	78	1,317	20	236	551	6,430
Louisiana	1,029	11,727	251	2,645	293	3,356	180	2,598	49	611	687	9,356
Maine	85	723	49	250	13	116	19	282	4	42	113	1,078
Maryland	559	10,695	122	1,820	111	2,443	160	2,850	7	186	355	5,507
Massachusetts	438	4,005	167	1,027	-------	-------	252	2,765	19	213	423	4,344
Michigan	1,250	15,922	303	3,321	281	4,457	490	5,854	34	367	920	11,646
Minnesota	105	1,274	38	256	20	208	40	706	1	42	176	2,421
Mississippi	1,586	21,456	575	6,844	537	7,254	427	6,348	47	940	2,713	31,713
Missouri	765	9,482	222	2,365	287	2,978	230	3,519	21	329	574	8,124
Montana	14	381	4	75	-------	29	5	121	-------	23	21	305
Nebraska	96	1,046	41	230	29	287	19	437	3	32	139	1,179
Nevada	44	455	4	99	-------	12	12	185	2	8	19	588
New Hampshire	30	357	6	58	-------	44	20	221	4	27	50	419
New Jersey	600	8,894	121	1,317	183	2,694	274	4,492	21	306	382	4,892
New Mexico	135	1,870	45	368	43	541	42	837	5	124	122	1,488
New York	2,303	30,255	542	6,448	569	6,942	1,120	15.832	57	831	[2] 1,473	[2] 16,993
North Carolina	560	7,977	253	2,858	213	2,963	70	1,745	24	368	809	9,685
North Dakota	20	226	10	52	5	44	2	69	-------	12	49	596
Ohio	1,209	20,082	352	4,675	331	5,385	467	8,930	49	670	487	6,089
Oklahoma	369	6,464	77	1,101	132	1,856	88	1,828	12	303	467	8,583
Oregon	85	1,650	17	410	8	209	47	888	3	59	147	2,399
Pennsylvania	827	10,323	189	2,036	350	4,148	246	3,384	37	469	[3] 241	[3] 2,628
Rhode Island	76	1,045	21	226	5	92	41	574	2	27	53	430
South Carolina	408	6,951	158	2,264	135	2,198	80	1,812	23	447	530	7,287
South Dakota	30	402	8	95	10	89	12	192	-------	21	65	585
Tennessee	972	11,878	246	2,594	394	4,848	305	4,067	23	322	1,594	16,251
Texas	1,011	13,315	247	3,507	457	5,902	271	2,960	26	567	871	15,665
Utah	27	453	4	99	10	116	13	231	-------	14	31	615
Vermont	13	139	6	28	-------	26	5	55	2	16	20	339
Virginia	669	9,321	246	2,891	255	3,627	140	2,356	21	373	627	7,356
Washington	208	3,295	62	666	59	947	70	1,337	7	84	383	5,360
West Virginia	320	3,793	187	1,883	76	913	43	813	9	117	856	6,383
Wisconsin	179	2,166	65	489	-------	36	114	1,625	-------	16	132	1,309
Wyoming	35	377	4	77	6	106	13	116	-------	2	28	240
Total United States	23,632	335,586	6,430	76,981	7,042	98,051	8,025	127,096	750	11,645	24,017	301,168
Alaska	3	131	1	36	-------	22	1	23	-------	1	58	474
Canal Zone	30	854	7	91	6	223	14	477	-------	15	71	824
Hawaii	64	543	2	26	4	60	54	418	2	33	38	390
Puerto Rico	487	8,465	68	1,027	160	2,865	139	2,442	120	2,067	305	6,411
Virgin Islands	4	152	-------	32	4	87	-------	30	-------	3	16	126
Total United States and Possessions	24,220	345,731	6,508	78,193	7,216	101,308	8,233	130,486	872	13,764	24,505	309,393

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[1] Includes "not stated."

[2] New York City only.

[3] Philadelphia and Pittsburgh only.

[4] No report for Georgia for December.

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Federal Security Agency

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UNITED STATES PUBLIC HEALTH SERVICE

Thomas Parran, *Surgeon General*

Editor: J. R. HELLER, Jr., *Medical Director*
Chief, Venereal Disease Division

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Editorial

It cannot be repeated too often nor too emphatically that penicillin therpy of syphilis is still an experimental procedure. This is true because of he prolonged course of the disease and its tendency to recur after periods f latency, and applies with equal force to any new treatment, drug or rocedure. Organized, coordinated methods of study and observation nlisting the help of clinicians, laboratories, and institutions undoubtedly peed up evaluation, but there is still a minimum period of 5 years of connuous observation on several thousands of patients which is absolutely ecessary before final conclusions can be drawn.

The incomplete state of our knowledge concerning penicillin therapy as emphasized recently by the discovery that some penicillin seemed to ave become less effective in the treatment of syphilis. Scattered reports o this effect from various clinicians had been reaching the U. S. Public Health Service and other agencies interested in the treatment aspects of yphilis control. In February, these clinical impressions were confirmed n experimental animals by responsible investigators.

A preliminary meeting of experimental laboratory workers in syphilis, nd of others interested in the matter, was held on March 6. At this meetng it was recommended that prompt appraisal of the situation be given ther participants in the clinical evaluation of penicillin therapy for yphilis.

Therefore, on March 26–27 a meeting was called by the U. S. Public Health Service, the National Research Council, and the Food and Drug Administration. Attending the meeting were representatives of the commercial manufacturers of the product, clinicians studying the use of penicillin in syphilis and other infections, laboratory experimenters, and representatives of the various interested Federal agencies.

At this meeting the following developments took place:

1. The evidence presented strongly suggested that some recently manufactured penicillin was less effective in the treatment of syphilis—the organisms disappeared from lesions less rapidly and clinical and serologic relapses occurred earlier and more frequently.
2. The "K" fraction of penicillin (penicillin species "K") predominated in the less effective product, whereas the "G" fraction had predominated in the earlier products which had given much better results.
3. The strains of the mold which produced the less effective product were identified (Q176 and X1612).
4. The manufacturers represented at the meeting pledged immediate and complete cooperation in converting to the production of a penicillin in which the more effective "G" fraction predominates. Some manufacturers had already begun the conversion.

(Continued on page 145)

The Systemic Treatment of Arsenic Poisoning With BAL (2,3-Dimercaptopropanol)[1]

Harry Eagle, Senior Surgeon
United States Public Health Service

The compound 2,3-dimercaptopropanol (British anti-lewisite, "BAL") was developed during the war as an antidote to the arsenical blister gases. First intended for the local decontamination and treatment of the skin and eye, it was subsequently found to be effective also in the systemic treatment of severe arsenic poisoning, occurring either after exposure to the arsenical blister gases, or observed as a complication of arsenotherapy.

The latter application is of particular interest in relation to the continuing use of arsenicals in the treatment of syphilis. Reports have now been received on more than 200 cases of various types of arsenical poisoning treated with BAL, with results which indicate that the danger of some complications may be markedly reduced by the early administration of BAL in adequate dosage.

A. EXPERIMENTAL BACKGROUND

The brilliant experimental studies of Stocken, Thompson, Peters, and their associates which led to the development of BAL, and the extensive studies of its biochemical and pharmacologic properties, have been summarized in two recent reviews (*5*, *6*). To recapitulate, the toxicity of arsenicals was known to rest on the fact that they combined with and blocked the function of physiologically essential groupings in the cell, and specifically, of cellular –SH groups (*7*, *8*) since shown to be at least in part associated with enzyme proteins (*9*). In 1940, Stocken and Thompson (*10*) demonstrated that the major portion of tl –SH groups in keratin were actual dithiols which combined with arsenic form a stable 5-membered ring. Th stable combination of arsenic with tiss proteins was sometimes, and to only minor degree, reversible by monothio such as cysteine or glutathione. On tl other hand, BAL and similar dithiols pr pared by the British investigators in tl light of the foregoing data were far mo effective, and protected tissue enzym from the toxic effects of arsenicals (c (*5*, *6*)). The marked stability of tl cyclic BAL-thioarsenite, even exceedir that of the tissue-arsenic combinatio permitted the removal of arsenic from tl tissues and its detoxification (cf. fig. 1 BAL accordingly proved highly effecti in the prophylaxis and treatment of tl skin and eye burns resulting from e posure to the arsenical blister gase Ointment preparations and solutions fo topical application were distributed t the Armed Forces against the possib initiation of gas warfare.

The ability of BAL to remove arseni from cells after it had been bound wa demonstrated in vitro with protozoa suspensions immobilized by arsenical Organisms "killed" almost instantane ously by exposure to toxic arsenicals i high concentration were actually resusc tated on the addition of BAL, which re moved the arsenical from the cell (*1* *12*). In animals also, the administratio of BAL was followed by a regular an sometimes striking increase in the rate o arsenic excretion ((*1*, *12*), cf. fig. 2). I consequence of this facilitated excretion a large proportion of animals receivin otherwise lethal doses of mapharsen lewisite, or phenylarsenoxide by varyin routes of administration could be save by the systemic administration of BA (tables 1 and 2).

From the Venereal Disease Research and Postgraduate Training Center of the U. S. Public Health Service, Johns Hopkins Hospital, Baltimore 5, Md.

[1] The present communication is a condensation of several recent reports (*1*, *2*, *3*, *4*) from this and collaborating laboratories.

The finding (*1*, *12*) that BAL, alough unstable in aqueous solution, was table in peanut oil and benzyl benzoate, nd in that medium could be sterilized in lass-sealed ampules with only a slight oss in activity, and the further demontration that the material in that form as as active as, and no more toxic than, he unstable solutions in water or propyene glycol, led directly to its systemic use n man for the treatment of the systemic anifestations of arsenic poisoning.

TOXICITY AND OPTIMUM DOSAGE OF BAL IN ANIMALS AND MAN

The maximal tolerated dose of BAL n peanut oil and benzyl benzoate on ingle intramuscular injection in rabits was 40 mg. per kilogram. When the njections were repeated at 4-hour inervals, the maximal tolerated dose per njection was reduced to 25 mg. per kilogram, and was further reduced to 15 to 20 mg. per kilogram when injections were repeated at 2-hour intervals (*1*). Studies in animals poisoned by mapharsen, lewisite, or phenylarsenoxide indicated that the widest margin of safety between these toxic levels and the effective dose was provided by injections repeated at 4-hour intervals (*1*). Further, a single injection of BAL in experimental animals was followed by an increased urinary excretion of arsenic for a period of 2 to 4 hours (cf. fig. 2). (This was subsequently confirmed in both normal human subjects and in men exposed to minimal concentrations of a toxic arsenical smoke (*3*)). Since the longest interval between injections consistent with a continuing effect on arsenic excretion was therefore approximately 4 hours, that interval was chosen for preliminary trial in man.

FIGURE I

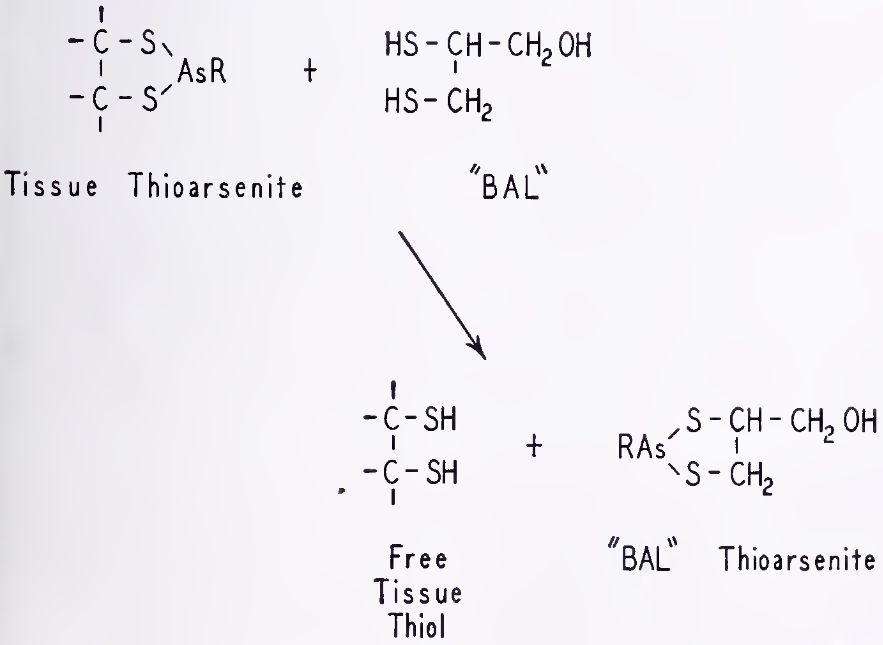

FIGURE 1.—The reaction between BAL and tissue thioarsenite. (After Stocken and Thompson (*6*, *10*)).

FIGURE 2

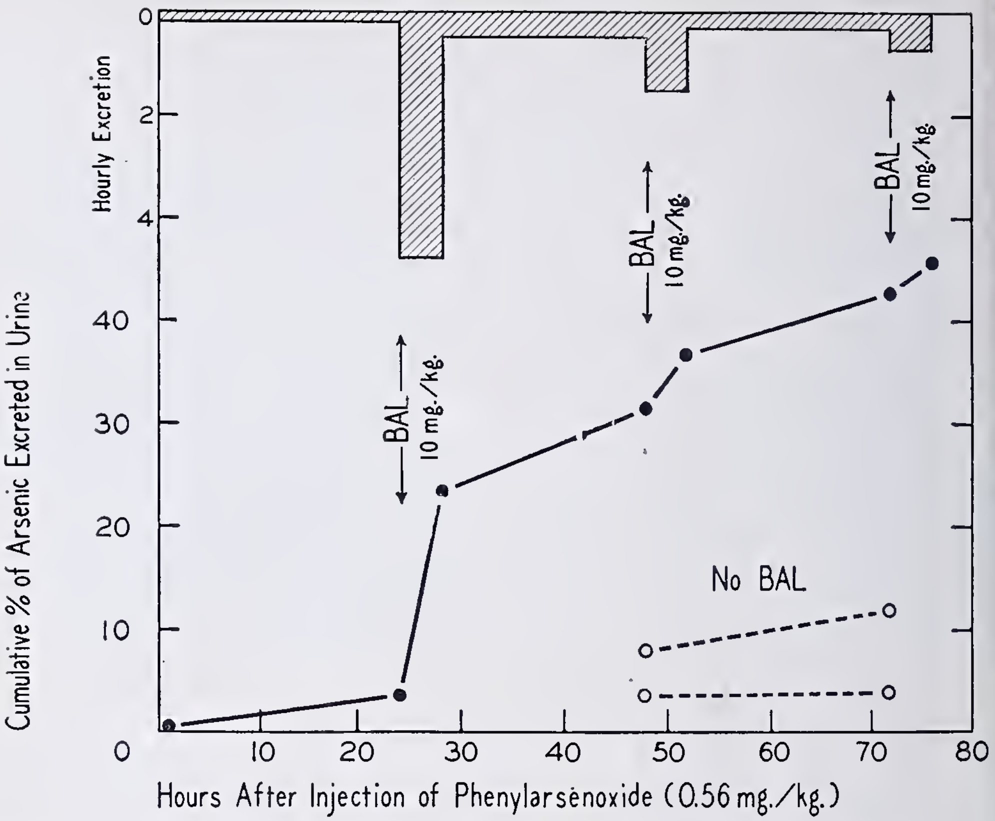

FIGURE 2.—The effect of BAL on the urinary arsenic excretion of rabbits poisoned by phenylarsenoxide. (After Eagle, Magnuson, and Fleischman (*1*)).

The dosage of BAL which, repeated at these 4-hour intervals, had been found to be reasonably effective in the treatment of experimental arsenic poisoning was on the order of 2.5 to 5 mg. per kilogram (*12*). Studies in human volunteers (*2*, *13*, *14*) demonstrated that doses of 2.5 and 3 mg. per kilogram could be injected intramuscularly in man with only temporary local discomfort at the site of injection, and with transitory and unimportant subjective reactions in a small proportion of the cases. At doses of 4 or 5 mg. per kilogram, however, the incidence and severity of these toxic reactions increased markedly (table 3). In order of decreasing frequency, the symptoms consisted of nausea, vomiting, and headache; a burning sensation of the lips, mouth, throat, and eyes, sometimes with accompanying lacrimation or salivation and pain in the teeth; generalized muscular aches with burning and tingling of the extremities; and a sense of constriction in the chest, with a feeling of anxiety. Sulzberger and his associates (*14*) also noted a frequent elevation in the systolic and diastolic blood pressure. Although these reactions regularly subsided in 30 to 90 minutes, at the larger doses they were distressing to the patient and sometimes alarming to the physician. It was therefore decided to limit the individual therapeutic dose in arsenic poisoning to a maximum of 3 mg. per kilogram.

CLINICAL RESULTS WITH BAL IN THE TREATMENT OF ARSENIC POISONING

In the light of the foregoing prelimi- ry studies, the systemic treatment of senical poisoning in man was begun in ptember 1943, using a peanut oil prepa- tion containing 5 percent BAL and 10 rcent benzyl benzoate, concentrations bsequently increased to 10 and 20 per- nt, respectively. The dosage first sug- sted (*13*) was 2.5 mg. per kilogram at ch injection, to be repeated 2 to 4 times the first day, and once to twice daily ereafter. A large proportion of the first 0 cases were patients observed and eated at the rapid treatment centers of e Public Health Service. The results, cently described in detail (*2*) and sum- arized in the following paragraphs, early reflect the therapeutic action of AL, but indicate also the necessity for th prompt and adequate treatment. Because of the relative freedom from systemic toxic reactions, the recommended amount of treatment has therefore been significantly increased (cf. table 4). There is reason to believe that the satisfactory results here reported may be further improved with these larger doses.

Toxic encephalitis.—In 55 cases of "hemorrhagic encephalitis" caused by intensive arsenotherapy, 40 were either convulsing or in coma at the time of administration of BAL. Forty-four cases recovered within 1 to 7 days, usually with definite improvement within 1 to 3 days; the other 11 cases died. The over-all mortality of 20 percent should be qualified by the fact that in 9 cases treatment was delayed for 9 to 72 hours after the onset of convulsions or coma. Five of the 11 deaths occurred in this small group. In 1 additional fatal case, the amount of treatment was wholly inadequate.

ABLE 1.—*The protection of rabbits from lethal doses of mapharsen by BAL (after Eagle, Magnuson, and Fleischman (1))*

Arsenical		Interval between arsenical and BAL	BAL treatment			Results		
Compound	Dose		Number of injections	Interval	Mg./kg. per injection	Number	Survived	Died
Mapharsen	20 mg./kg.	5 min	1 (aqueous).		36	4	4	0
					24	3	3	0
					12	3	2	1
					6	3	1	2
			Controls (no BAL)		0	5	0	5
Mapharsen	32 mg./kg. (4 x 8 mg./kg. at hourly intervals).	1 hr	1 (propylene glycol).		40	9	4	5
					20	9	3	6
					10	9	5	4
					5	9	2	7
			Controls (no BAL)		0	39	0	39
		1 hr	1 (peanut oil and benzyl benzoate).		20	8	4	4
					10	8	4	4
					5	7	2	5
					2.5	7	1	6
		1 hr	4 do.	2 hrs	10	10	3	7
					5	10	4	6
					2.5	10	4	6
					1	10	4	6
		1 hr	10 do.	4 on first day, at 2-hr. intervals, followed by daily injection for 6 days.	10	9	5	4
					5	11	7	4
					2.5	10	5	5
					1	10	5	5
		1 hr	4 do.	24 hrs	10	10	6	4
					5	10	4	6
					2.5	9	2	7

Table 2.—*The protection of rabbits from lethal doses of lewisite and pheny arsenoxide by BAL (after Eagle, Magnuson, and Fleischman (1))*

Arsenical		Interval between arsenical and BAL	BAL treatment [1]			Results		
Compound	Dose		Number of injections	Interval	Mg./kg. per injection	Number	Survived	Died
Lewisite	4.5 mg./kg	2 hrs	1		40	8	4	4
					20	8	5	3
					10	6	0	6
			4	4 hrs	10	8	2	6
					5	8	6	2
					2. 5	8	3	5
					1. 25	3	0	3
			8	2 hrs	10	6	2	4
					5	4	3	1
					2. 5	3	2	1
					1. 25	4	2	2
			Controls (no BAL)		0	11	0	11
Phenylarsenoxide.	2.2 mg./kg	2 hrs	7	4 at 4-hr. intervals on 1st day, followed by daily injection for 3 days.	5	6	3	3
					2. 5	6	4	2
					1. 25	6	2	4
			Controls (no BAL)		0	7	0	7

[1] Solution in peanut oil and benzyl benzoate.

These results suggest that if BAL is administered in adequate dosage soon after the onset of cerebral symptoms, the mortality in toxic encephalopathy may be reduced to probably less than 15 percent.

Arsenical dermatitis.—In 88 cases of arsenical dermatitis, of whom 51 were typical exfoliative cases, the administration of BAL usually stopped the progression of the inflammatory reaction and accelerated the healing process. The average time for definite improvement in the exfoliating cases which responded to treatment (80 percent) was 3 days, and the average time for almost complete recovery was 13 days. The degree to which the proportion of cases not responding to treatment (20 percent) may be reduced by more intensive and more prolonged treatment remains to be determined.

The only serious complications of BAL therapy were all observed in this group of patients, and consisted of 5 cases which developed gluteal abscesses or cellulitis at the site of injection. This complication did not occur in other types of arsenic poisoning, and was probably referable to infection carried along with the needle in going through an inflamed and infected area.

Table 3.—*Effect of size of BAL injection on the proportion of injections attended by toxic reactions in man (after Eagle and Magnuson (2))*

[BAL was injected intramuscularly as a solution in peanut oil containing 10 gm. BAL and 20 gm. benzyl benzoate per 100 cc.]

BAL mg./kg. per injection	Number of patients	Total number of injections	Number of injections attended by reaction [1]	
			Number	Percent
2. 5	61	500–600	4	1
4	39	115	16	14
5	21	79	52	65

[1] As described in the text, the toxic reactions, although varied, were largely subjective in character and usually disappeared within 30 to 50 minutes.

ABLE 4.—*Recommended schedule for administration of BAL in cases of arsenical poisoning (all injections at 4-hour intervals, intramuscular)*

	Each injection				Number of injections on day			
Toxic complication	Mg. per kg.	Body weight		Dose, cc. of 10 percent solution	1	2	3	4–10
		Pounds	Kg.		All injections at 4-hr. intervals			
SEVERE								
cephalitis foliative dermatitis erdose of arsenical ood dyscrasias undice	3	<120	<55	−1.7		6	4	2 daily
		120–155	55–70	1.9				
		155–185	70–85	2.3				
		>185	>85	2.4−				
MILD								
pular. dermatitis ver inth-day erythema”	2.5	<120	<55	−1.4	4	4	2	1–2 daily
		120–155	55–70	1.6				
		155–185	70–85	1.9				
		>185	>85	2.0−				

Blood dyscrasias.—In 10 of 11 cases of rsenical agranulocystosis, the adminis- ation of BAL was followed by an in- rease in the total white blood cell count, nd an even more pronounced increase in he proportion and number of polymorphonuclear leukocytes. This was sually apparent within 2 days, and the white count approached normal levels within 7 days (cf. fig. 3). The eleventh patient, in whom the blood platelet count was also reduced, died on the 4th day.

BAL in the dosage used had no effect n 3 cases of aplastic anemia occurring as a complication of arsenotherapy.

Jaundice.—The role of arsenic in the ausation of so-called postarsenical jaundice is a moot question. It may be significant in this connection that of 14 cases reated with BAL, the symptomatic improvement in 5 was so prompt as to suggest that BAL may have been responsible for the observed response. In the 3 of those 5 in whom it was studied, the blood bilirubin levels fell to approximately normal limits within 7 to 10 days. However, in 7 of the 14 cases, BAL had no demonstrable effect on the clinical course, and in 2, its effect was debatable. It would therefore appear that BAL may favorably affect the course of postarsenical jaundice in a definite if small proportion of the cases.

Massive overdose of mapharsen.—Four patients who were in error given large doses of mapharsen or its analogues, 3 receiving 400–600 mg. and 1 receiving 1,200 mg. in a single intravenous injection, have been treated with BAL. The 3 patients who received prompt and adequate treatment recovered, with prompt disappearance of the symptoms which had developed following the injection of the arsenical. The fourth patient (1,200 mg. mapharsen) received altogether inadequate amounts of BAL (3 injections of 150 mg. each) and eventually died after an initially favorable response.

“Arsenical fever.”—Forty-four patients who developed a febrile reaction as a complication of arsenotherapy (in 15 associated with a toxic rash) promptly recovered after the administration of BAL. Most of these cases would probably have been self-limited even without treatment, and the therapeutic evaluation of BAL is correspondingly difficult.

D. EFFECT OF BAL ON URINARY EXCRETION OF ARSENIC IN MAN

In 6 normal subjects (*3*), in 12 volunteers exposed to small concentrations of a toxic arsenical smoke (*3*), and in 11 cases of arsenical dermatitis (*2*, *4*), the injection of BAL was regularly followed by an increased urinary excretion of arsenic. In the first 2 groups, in whom it was possible to collect urine specimens at 2-hour intervals, the effect of BAL was shown to be temporary, disappearing within 2 to 4 hours after a sing injection.

In 6 cases of so-called postarsenic jaundice, the urinary arsenic excretic was significantly increased in only corresponding to the irregularly favo able effect of BAL in that complicatio (cf. page 119).

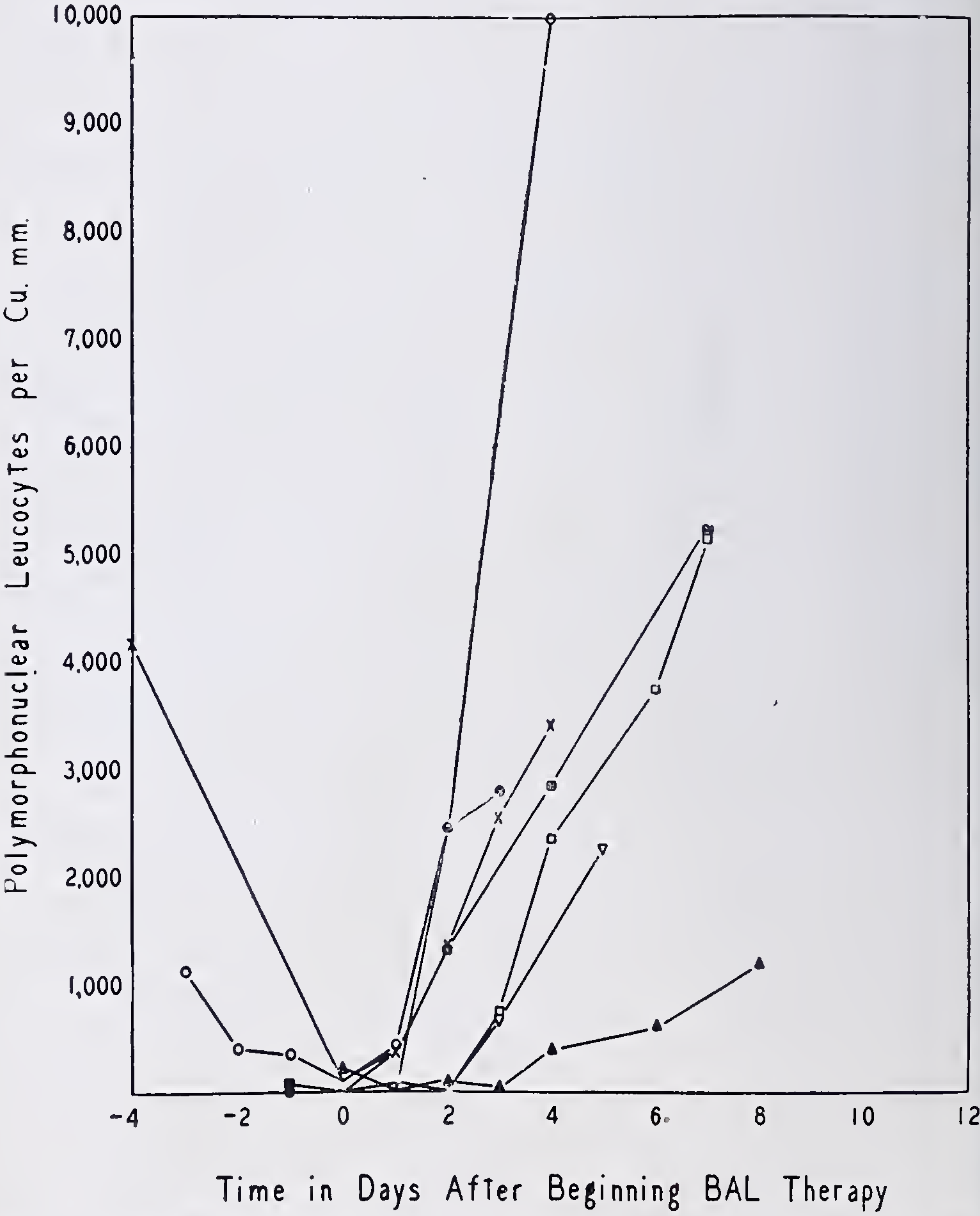

FIGURE 3.—The effect of BAL on the polymorphonuclear leucocytes in 7 cases of arsenical agranulocytosis. (After Eagle and Magnuson (*2*).)

E. RECOMMENDED METHOD FOR THE ADMINISTRATION OF BAL IN PEANUT OIL AND BENZYL BENZOATE IN THE TREATMENT OF ARSENIC POISONING

The absence of a toxic complication with the doses of BAL used in the cases hitherto treated, and the clear indication that the therapeutic results depend on the promptness and adequacy of its administration, suggest that somewhat larger doses should be used than have heretofore been the case. A suggested schedule of treatment is summarized in table 4. In the severe complications, the recommended dosage per injection is 3 mg. per kilogram. A man weighing 60 kg. would receive 1.8 cc. of the 10 percent solution every 4 hours for the first 2 days (i. e., 6 injections daily), 4 injections on the 3d day, and injections twice daily thereafter for 10 days, or until complete recovery. Milder cases may be given 2.5 mg. per kilogram at each injection. A man weighing 60 kg. would receive 1.5 cc. at 4-hour intervals 4 times on each of the first 2 days, twice on the 3d day, and once or twice daily thereafter for 10 days, or until complete recovery.

SUMMARY

Pharmacologic and clinical data have been summarized which indicate that BAL (2, 3-dimercaptopropanol) is of value in the systemic treatment of certain types of arsenic poisoning. In the severe complications, mortality is apparently reduced and the period of hospitalization shortened. In the milder complications, recovery is apparently accelerated.

The results to date emphasize the importance of prompt and adequate treatment, and a recommended dosage schedule is given in the text.

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*Some of the investigations here listed as references (*) have not yet been published in the open literature and the information has been made available by communication. The date given is the year in which the study was carried out. Much of this unpublished material is summarized in two recent reviews (cf. (5, 6)).

False Positive Serologic Reactions for Syphilis in Lymphogranuloma Venereum[1]

Albert Heyman, M. D., and E. L. Webb, A. B.

Many authors have commented upon the occurrence of false positive tests for syphilis in lymphogranuloma venereum (*1, 2, 3*), but only a few studies have considered this phenomenon in any detail (*4, 5*). Although the hyperproteinemia associated with lymphogranuloma venereum has been suggested as a cause of the false positive reactions, there have been no studies correlating serum proteins and serologic manifestations in this disease. Likewise, the incidence and duration of the transient positive reactions in lymphogranuloma venereum are undetermined, for these reactions may occur for a relatively short period and may not be observed when occasional specimens of serums are tested. The accuracy of the previous studies on this subject is also open to question, for the diagnosis of lymphogranuloma venereum has been based upon purely clinical or unreliable laboratory criteria. Since chancroid is easily confused with this infection and is also known to produce false positive serologic reactions (*5, 6*), many of the earlier observations on this subject may be incorrect.

The clinical and laboratory manifestations of 25 patients with proved lymphogranuloma venereum have been carefully studied and false positive serologic tests for syphilis have been observed in a number of instances. In the present article the results of the serologic reactions of these patients are reported in detail and the relationship of the serum protein to the false positive reactions is evaluated. To our knowledge, there are no similar reports in which a series of proved cases of lymphogranuloma venereum has been studied in this manner.

METHODS

The diagnosis of lymphogranuloma venereum was established in 25 patients by the isolation of the virus from the unruptured buboes. This virus produced symptoms of meningoencephalitis in mice and was pathogenic for the developing chick embryo when inoculated into the yolk sac. Smears of the infected mouse brains and yolk sacs revealed elementary bodies similar to those found in the psittacosis-lymphogranuloma venereum group of infectious agents. Although positive identification is still in progress, it is reasonable to assume for the purpose of this study that these agents are strains of lymphogranuloma venereum virus because of their sources, pathogenicity, and morphology. This work was done in conjunction with other members of the Department of Medicine, and the details of the isolation and identification of the virus strains will be reported at a later date.

A complete history was obtained and a physical examination was made in each of the 25 cases. Each patient was questioned about previous treatment and serologic tests for syphilis. Darkfield examinations were made of all genital lesions. Standard Kahn and Wassermann (Kolmer) tests were performed on the patient's first visit and at weekly intervals for approximately 2 months. Serum protein determinations and formol-gel reactions were also done on the same specimens of serum. A portion of each serum sample was frozen and stored at —70° C. The frozen serums of the patients exhibiting transient positive serologic tests were thawed after several

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From the Clinic for Genitoinfectious Diseases of Grady Hospital, the Department of Medicine, Emory University School of Medicine, and the Laboratory of the Georgia Department of Public Health.

[1] Aided by a grant from the Venereal Disease Division of the U. S. Public Health Service.

months and were examined on the same day with a battery of serologic tests in another laboratory. This was done to avoid the uncontrollable day-to-day laboratory variations in sensitivity (7) and to determine whether tests other than the Kahn and Wassermann would show false positive reactions. Samples of serum were taken at weekly intervals in order to obtain a truer incidence of the occurrence of biologic false positive reactions in this disease. It is realized that testing of daily specimens of serums would yield more accurate data, but this was impractical.

RESULTS

Twelve of the 25 patients with lymphogranuloma venereum had no history or evidence of syphilitic infection. Six of these showed transient positive or doubtful serologic reactions for syphilis, while the other 6 had persistently negative Kahn and Wassermann tests. Most of the 13 remaining cases with a history of syphilis showed positive Kahn and Wassermann reactions throughout the entire period of observation.

Three of the 6 patients with transient serologic reactions for syphilis showed isolated positive or doubtful tests unrelated to the stage of the lymphogranulomatous infection. In these cases, retesting with frozen serums failed to confirm the transient reactions. Although this may be the result of the slight loss of reagin which occurs when serums are stored (*8*, *9*), it is also possible that the false positives in these 3 patients were laboratory errors.

TABLE 1.[1]—*Case M. R.* (*Negro male*)

Date	Fresh serum tested as collected		Frozen serum tested simultaneously						Serum protein (gm. per-cent)	Formol-gel	Clinical findings
	Kahn standard	Wassermann	Kahn standard	Wassermann	Kline diagnostic	Eagle	Mazzini	Hinton			
11/15/44	D	A. C.	------	------	------	------	------	------	8.1	P	Bilateral fluctuant buboes, 5 days' duration. Malaise.
11/21/44	P (4 u.)	P	P	A. C.	------	------	P	------	8.4	P	Increased suppuration. T. 98° F.
11/28/44	P (4 u.)	P	P	A. C.	------	D	P	------	8.2	P	Fluctuation persists despite continuous sulfathiazole therapy. T. 98° F.
12/19/44	D	O	------	------	------	------	------	------	------	P	
1/2/45	O	O	D	------	------	O	------	O	8.2	P	
1/10/45	D	O	------	------	P	O	------	O	7.7	P	
1/16/45	O	O	------	------	------	------	------	------	7.6	P	Condition improved.
1/24/45	O	O	------	------	------	------	------	------	------	P	
5/2/45	O	O	------	------	------	------	------	------	------	------	Well.

[1] In this table and subsequent tables, results of serologic and formol-gel reactions are expressed as positive (P), doubtful (D), negative (O), and anticomplementary (A. C.). When quantitative tests were performed, the titer is expressed in units and is parenthetically entered after the positive result.

The false positive reactions in the other 3 cases were definitely not laboratory errors, for the reactions persisted for several weeks, and were duplicated in another laboratory and by other serologic tests. The results of the various serologic reactions, the formol-gel tests, and the serum protein determinations in these 3 cases are summarized in tables 1, 2, and 3. It should be noted that not only did the Kahn and Wassermann tests give false positive results, but that the Hinton, Mazzini, Eagle flocculation, and Kline diagnostic tests also showed such reactions. When quantitative titration was performed, the reactions were positive only in undiluted serums.

The serum proteins were elevated in 2 of these 3 cases and hyperglobulinemia was present at the same time the serologic reactions were positive. In 1 of these cases (table 2), the false positive reactions reverted to negative as the proteins became normal, while in the other instance (table 1), the serologic tests became negative despite continued hyperglobulinemia. In the third patient (table 3), the false positive serologic reactions occurred without any evidence of serum protein elevation.

The biologic false positive serologic reactions appeared to be related to the activity of lymphogranuloma venereum and were usually found during the height of the infection. These reactions usually persisted for 2 to 3 weeks and had a tendency to revert to negative as the buboes healed.

COMMENT

Transient false positive serologic tests for syphilis occurred in 6 of 12 patients with lymphogranuloma venereum who had no evidence of previous syphilitic infection. Three of these cases appeared to have biologic false positive tests, while the other 3 cases may have been caused by laboratory error. The incidence of false positive reactions obtained in this series is in accord with those obtained by Cariola (*4*) and by Knott and his coworkers (*5*).

TABLE 2.—*Case A. T. (Negro male)*

Date	Fresh serum tested as collected		Frozen serum tested simultaneously						Serum protein (gm. percent)	Formolgel	Clinical findings
	Kahn standard	Wassermann	Kahn standard	Wassermann	Kline diagnostic	Eagle	Mazzini	Hinton			
3/29/45	P (4 u.)	O	------	------	------	------	------	------	7.8	P	Penile ulcer. Negative darkfield. Bilateral buboes. T. 101.4° F. Malaise.
4/4/45	P (3 u.)	O	O	------	O	------	O	------	7.8	P	Buboes now fluctuant. T. 100.4° F.
4/10/45	P (2 u.)	O	D	O	O	D	D	P	8.1	P	Buboes fluctuant despite 3 weeks' sulfonamide therapy.
4/18/45	D	O	------	------	------	------	------	------	8.0	P	
5/5/45	O	O	------	------	------	------	------	------	7.5	P	Buboes smaller.
6/26/45	O	O	O	O	O	O	O	D	7.1	O	Well.
7/13/45	O	O	------	------	------	------	------	------	7.1	------	

The number of cases in this study is too small to draw conclusions as to the exact incidence of false positive serologic reactions in lymphogranuloma venereum. It is apparent, nevertheless, that such reactions occur in a significant proportion of patients with this disease. The small number of cases in this series is due to the difficulty of isolating the virus of lymphogranuloma venereum and also to the high incidence of previous syphilitic infection in this group of patients. Although several of the patients with a history of treated syphilis and negative serologic tests developed transient positive serologic reactions during the acute stages of lymphogranuloma venereum, these reactions cannot be safely called biologic false positives.

Several workers (*10, 11*) have suggested that the false positive serologic tests in lymphogranuloma venereum are related to the hyperproteinemia associated with this infection, but there was little evidence in our study to support this idea. False positive serologic tests occurred not only in the absence of increased serum protein, but also became negative while the hyperproteinemia persisted. The biologic false positive tests for syphilis seem to appear during the period of greatest activity of lymphogranulomatous infection. Hyperproteinemia frequently occurs during this phase of the disease, and the simultaneous appearance of the two laboratory findings is probably coincidental. Davis (*12*) also believes that the hyperglobulinemia and positive serologic reactions occurring in this disease are separate manifestations of the same underlying processes.

Anticomplimentary Wassermann reactions have also been suggested as a manifestation of hyperproteinemia and

TABLE 3.—*Case D. L. (Negro male)*

Date	Fresh serum tested as collected		Frozen serum tested simultaneously						Serum protein (gm. percent)	Formol-gel	Clinical findings
	Kahn standard	Wassermann	Kahn standard	Wassermann	Kline diagnostic	Eagle	Mazzini	Hinton			
3/26/45	O	O	------	------	------	------	------	------	6.5	O	Small nodes, 3 weeks' duration. Malaise, headache.
4/3/45	D	O	O	A. C.	O	O	O	D	6.9	O	T. 98.2° F. No change after sulfathiazole therapy.
4/18/45	P (2 u.)	O	D	A. C.	O	O	O	O	6.8	O	Nodes smaller and less tender.
4/27/45	P (2 u.)	O	D	A. C.	O	O	O	D	5.8	O	
6/25/45	O	O	------	------	------	------	------	------	------	------	Well.
0/29/45	O	O	------	------	------	------	------	------	6.5	O	

ymphogranuloma venereum (*13*). In ur experience, these reactions are unommon. Despite the presence of hyperlobulinemia in 48 percent of these paients and of elevated serum proteins (more than 7.8 gm. percent) in 16 perent, anticomplementary Wassermann eactions were found only twice with the use of fresh serums. This reaction was ncountered more frequently, however, when frozen serums were used.

The number of instances in which ymphogranuloma venereum produces bioogic false positive tests for syphilis is of considerable importance in management of the individual case. It is easily understood how patients with penile lesions and nguinal adenopathy can be misdiagnosed as syphilitic when such serologic reactions occur. Antisyphilitic therapy should be withheld in all such cases when darkfield examinations are negative, and quantitative serologic tests for syphilis should then be done. Since most of the false positive reactions are of low titer, a persistently high titer or a rising serologic titer is important for the diagnosis of syphilis.

SUMMARY

The results of serologic tests for syphilis, formol-gel reactions, and serum protein determinations were studied in 25 patients with proved lymphogranuloma venereum. Thirteen of these patients had syphilis. Of the remaining 12 patients, 3 showed biologic false positive serologic reactions. There appeared to be no definite correlation between these false positive serologic reactions and the hyperproteinemia associated with lymphogranuloma venereum. The false positive tests usually persisted for 2 to 3 weeks and occurred during the height of the lymphogranulomatous infection. In the management of patients with venereal disease infections, the recognition of false positive tests for syphilis is important.

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Studies in Syphilis. VI. Fibrosis and Round Cell Infiltration of the Parenchymatous Organs (Warthin) in Relation to Serodiagnostic Findings

Paul D. Rosahn, M. D.

In several publications and particularly in his Harvey Lecture (*1*), Warthin has described tissue changes which he interpreted as pathognomonic of syphilitic infection. These lesions, occurring especially in the heart and aorta, liver, pancreas, adrenals, and testes, consisted essentially of fibrous tissue deposition with varying numbers of infiltrating lymphocytes and plasma cells. We have found identical lesions in the parenchymatous organs of nonsyphilitic persons, and have concluded that they are of a nonspecific nature related to the aging process (*2*). In pursuance of the general problem of the specificity of these lesions, it appeared advisable to study their relation to the results of serologic tests for syphilis.

MATERIAL AND METHODS

The comparisons to be presented are between two groups, one composed of individuals with positive serums, and the other of syphilitic persons with negative serums. Table 1 gives the sex distribution of the two groups according to the presence or absence of anatomic lesions of syphilis at autopsy. Each of the 61 individuals with seronegative reactions in whom anatomic lesions of syphilis were absent at autopsy was diagnosed as syphilitic on good clinical or historical evidence, and 22 (36.1 percent) were known to have reacted positively to an earlier serologic test for syphilis. Autopsies were performed on all patients. All were white persons, 20 years of age or older. A detailed description of the microscopic technic and of the tissue alterations denoted "Warthin lesions" has appeared elsewhere (*2*).

The serologic tests were performed in a central laboratory under the supervision of the Department of Immunology. A

From the Department of Pathology, Yale University School of Medicine, New Haven, Conn., and the Laboratories of the New Britain General Hospital, New Britain, Conn.

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dified Kolmer complement fixation
t has been the standard procedure. In
8 the Kahn precipitation test became
itine, checked where indicated by the
plement fixation test. The Kline ex-
sion and diagnostic tests have been
asionally employed (*3*). The Chi-
iare test of homogeneity has been
lized in the statistical comparisons, and
nificance has been attached to values
P ≤ 0.01.

RESULTS

Table 2 gives the distribution of Warthin lesions according to the organ involved and to serologic classification. In none of the five organs under consideration was the frequency of Warthin lesions in the serologically positive group significantly different from the corresponding frequency of these lesions in the serologically negative group. Thus the sero-

BLE 1.—*Distribution of 225 syphilitic patients according to sex, serologic status, and presence or absence of anatomic lesions of syphilis at autopsy*

Serologic test for syphilis	Anatomic lesions present		Anatomic lesions absent		Total
	Male	Female	Male	Female	
Positive	50	17	49	26	142
Negative	19	3	38	23	83
Total	69	20	87	49	225

gic results in syphilitic individuals with
d without frank anatomic evidence of
e disease were not influenced by the
ssue changes described by Warthin.

In the above analysis, syphilitic per-
ns with and without anatomic lesions
syphilis at autopsy were grouped to-
ther. In order to eliminate any possi-
e distortion of the results that might
ve occurred because of the inclusion in
e analysis of syphilitic persons with
frank anatomic lesions, a similar analysis was conducted on the group consisting of 136 individuals (see table 1) in whom no evidence of syphilis was discovered postmortem. The results are shown in table 3. Here again the frequency of Warthin lesions in syphilitic individuals with positively reacting serums was organ for organ no different from the frequency of these lesions in those with negative serums.

BLE 2.—*Distribution of Warthin lesions among syphilitic persons with positive and negative serologic reactions, according to organs*

Organ involved	Serologic test for syphilis	Cases	Warthin lesion present	Chi-square
Heart	positive	113	48	3.78
	negative	71	20	
Pancreas	positive	102	44	0.42
	negative	62	30	
Adrenal	positive	70	24	1.69
	negative	75	23	
Liver	positive	119	44	1.24
	negative	69	20	
Testis	positive	35	18	0.04
	negative	26	14	

TABLE 3.—*Distribution of Warthin lesions among syphilitic persons with no anatom evidence of syphilis at autopsy according to organs and to serologic reaction*

Organ involved	Serologic test for syphilis	Cases	Warthin lesion present	Chi-square
Heart	positive	57	22	1.51
	negative	51	14	
Pancreas	positive	51	25	0.13
	negative	42	19	
Adrenal	positive	25	7	0.17
	negative	60	16	
Liver	positive	65	27	1.43
	negative	49	15	
Testis	positive	15	9	0.02
	negative	16	10	

The preceding comparisons have to do with the presence or absence of Warthin changes in single organs as related to the results of serodiagnostic tests. An extension of this study was made to determine whether the multiplicity of organs showing Warthin changes could be related to the results of serologic tests for syphilis. For this purpose, the autopsy protocol of each of the 225 syphilitic individuals was reviewed, and a tabulation was made of the number of organs showing the Warthin changes. There were 109 persons in the group with positively reacting serums in whom three or more organs were examined for Warthin changes, as contrasted with 67 persons in the group with negative serodiagnostic findings. Fifty-one of the first group and 31 of the second showed Warthin changes in two or more organs. There is no significant difference between these findings (Chi-square=0.00+). Thus the number of parenchymatous organs showing Warthin changes was not related to the results of serologic tests for syphilis.

SUMMARY

A comparison was made between two groups of syphilitic individuals, one group with positive and the other with negati serums, as to the frequency of the micr scopic changes described by Warthin i each of five parenchymatous organ Organ for organ the incidence of the lesions in the two groups showed no si nificant differences. Moreover, syphilit persons with typical Warthin lesions i multiple organs were no more likely t present serologic evidence of syphilis tha those with Warthin lesions in only on organ. The findings presented in thi communication indicate that the chang described by Warthin are not related t the reaction of the serum to known test for syphilis.

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The Use of Smears in the Laboratory Diagnosis of Gonorrhea

Florence L. Evans, Ph. D.

State Board of Health Laboratories, Jefferson City, Mo.

During recent years there has been eat development in the technics of culral examination of exudates to deterine the presence or absence of Neisseria norrhoeae. The increased attention id to this method has apparently overadowed the fact that direct microscopic amination of smear preparations is still extremely valuable procedure and can ecome even more valuable. The followg is a review of the results obtained by e author in the examination of 5,014 nsecutive specimens of 2 slides each bmitted to the Division of Laboratories f the State Board of Health at Jeffern City, Mo. It illustrates the need for re in the preparation of slides and the fficacy of careful staining technics in e detection of the organism.

Gram-negative intracellular diplococci orphologically resembling Neisseria onorrhoeae were observed in 999 speciens (19.9 percent of the 5,014 exmined). However, 2,320 of the speciens had large numbers of extraneous acteria, in many instances being solid heets of bacteria and epithelial cells vith even the identity of polymorphonulear leukocytes obscured. Among these nsatisfactory preparations, gram-negaive intracellular diplococci were oberved in 218 (9.4 percent). On the ther hand, 2,694 specimens contained ew or no extraneous bacteria, and among hese, gram–negative intracellular dipococci were observed in 781 (29.0 perent).

If it is reasonable to assume that the ercentage of positive specimens should ave been about the same in the 2,320 oor specimens as in the 2,694 good ones, hen it follows that two-thirds of the positive findings among the poor slides were nissed, and that if the 2,320 poor specinens had been carefully collected, the number of positive results would have been nearer 600 than 200. That the percentage of positive results among poor specimens probably is about the same as among good preparations is indicated by the following experience. One physician who had been submitting specimens, which were for the most part masses of bacteria, epithelial cells, and pus, was much dissatisfied because he rarely got a positive report, although he was convinced that many of the specimens were from patients with gonorrhea. When he learned to prepare his specimens carefully many of them showed gram-negative intracellular diplococci. In this instance, it is evident that the difference was in the preparation of the smears, not in the type of patient.

In this series, extracellular gram-negative diplococci are regarded as positive. However, there were only 14 such specimens in the whole series, of which 12 were on good preparations and 2 on poor. In each instance, the pus cells were so badly fragmented that it could not be determined whether or not the organisms were intracellular. In all other instances, when extracellular gram-negative diplococci were observed, further search revealed intact polymorphonuclear leukocytes containing them.

The stain used throughout was the Hucker modification of Gram's stain with full strength ammonium oxylate crystal violet, alcohol-acetone decolorizer, and safranin counterstain. The procedure used was such that 40 slides could be stained in approximately 15 minutes, yet each slide was stained individually. The slides were placed on flat racks which held 20 slides each and a rack full was fixed over an electric heater for 10 seconds. Two racks of slides were stained at one time. The crystal violet was put on and as soon as the slides in the last rack were covered the first rack was washed and the iodine added. The second rack of slides was then washed and iodine put on them. The first rack was washed and decolorized, then the second rack was treated in a similar manner. All the slides were then covered by safranin counterstain and washed. All reagents but the iodine were in bottles with glass spouts of such a size as to deliver a fine stream of reagent. With such bottles 1 minute was required to cover a rack of 20 slides with stain. A standard dropping bottle was used for the iodine, which required 2 minutes to cover 20 slides. Each slide was decolorized 5 to 10 seconds, depending on the thickness of the smear.

Smears were judged under the micr scope. Satisfactory stains had pol morphonuclear leukocytes and epitheli cells completely decolorized and staine pink. Keratinized epithelial cells had thick dusting of blue granules and gran positive organisms were purplish blac This staining procedure gives unusuall reliable and brilliant preparations an has been used in this laboratory wit excellent results for many years.

The author is of the opinion that i creased care in the preparation of spec mens submitted for microscopic examin tion for Neisseria gonorrhoeae, togethe with a reliable staining procedure, woul bring about a marked improvement in th laboratory diagnosis of gonorrhea.

CURRENT LITERATURE

Note: Abstracts of any article listed below are available on request. In addition, abstracts of all articles concerned with venereal diseases or related subjects which have been published in the better known journals both here and abroad during the past 20 years are in the files. These are open to workers in the field. An asterisk (*) before a title indicates that the article is abstracted below.

Am. J. Surg., New York

*Experimental transmission of lymphogranuloma venereum through the placenta. Hugo Hellendall. 70: 320–336, Dec. 1945.

Experimental transmission of lymphogranuloma venereum through the placenta.—The author discusses the possibility of the transfer of lymphogranuloma venereum through the placenta to the fetus. The chronic and debilitating effect of this disease, especially in women, makes it definitely important in obstetrics.

In experiments with mice, the lymphogranuloma venereum virus was found to be transmitted through the placenta to the fetus, the virus being found in the brain of the fetus before delivery. Also seen was the persistency of the virus through the second and third deliveries of the mother and offspring. The finding of elementary bodies in the subcutaneous skin tissue, and the positive Frei test ob tained in 2 human patients with antigen from the skin emulsion of the mouse, ar taken as proof of lymphogranulom venereum infection.

The clinical question of congenita lymphogranulomatosis in human being requires further study, including infor mation as to whether the disease shoul be treated in the uterus, in the newborn or in the child at a later stage.

Am. J. Syph., Gonor. & Ven. Dis., St
Louis

The public health aspect of malaria therap of neurosyphilis. Walter L. Bruetsch 29: 494–505, Sept. 1945.

*The serologic differentiation of syphiliti and false positive sera. Virgil Scott Charles R. Rein, Ira L. Schamberg, J. E Moore and Harry Eagle. 29: 505–528 Sept. 1945.

*The prognosis of syphilis. A critical re view of clinical, autopsy, and life insurance studies. Ira Leo Schamberg. 29 529–550, Sept. 1945.

terial embolism following injection of iodobismitol. Laurence J. Underwood. 29: 556–561, Sept. 1945.

nicillin treatment of previously untreated acute gonorrhea. Robert Dyar, Julius R. Scholtz and Edward C. Hammond. 29: 562–567, Sept. 1945.

ıe treatment of gonococcal arthritis with sulfonamides and artificially induced fever. Saul Solomon. 29: 567–574, Sept. 1945.

'he retardation and suppression of experimental early syphilis by small doses of penicillin comparable to those used in the treatment of gonorrhea. Harold J. Magnuson and Harry Eagle. 29: 587–596, Nov. 1945.

Studies on liver function. I. Liver function in early syphilis before and during massive arsenotherapy. Martin M. Hoffman and Frederick Kalz. 29: 596–603, Nov. 1945.

eport of a chancre developing in a patient with cardiovascular syphilis. Evan W. Thomas, Gertrude Wexler and Max Schur. 29: 604–607. Nov. 1945.

'reatment of granuloma inguinale with anthiomaline. Report of a case with extragenital lesion. Lawrence C. Goldberg. 29: 608–610, Nov. 1945.

Lymphogranuloma venereum. Diagnostic aids: I. The formol-gel test. Frank C. Combes, Orlando Canizares and Simeon Landy. 29: 611–618, Nov. 1945.

*Inguinal lymphogranuloma venereum in the male. A study of 750 consecutive cases from Panama. Harold A. Tucker. 29: 619–629, Nov. 1945.

The in vitro action of penicillin on Hemophilus ducreyi. Tsun Tung and Chester N. Frazier. 29: 629–632, Nov, 1945.

*Studies on chancroid. II. Efficiency of the cultural method of diagnosis. Paul B. Beeson and Albert Heyman. 29: 633–640, Nov. 1945.

The effect of a respiratory sulfadiazine prophylactic program on the incidence of sulfonamide-resistant gonorrhea. Robert H. Abrahamson. 29: 641–644, Nov. 1945.

An accelerated schedule for the treatment of gonorrhea with penicillin on an outpatient basis. Frederick G. Gillick and Ben D. Chiun. 29: 644–646, Nov. 1945.

The contact-education interview. Its functions, principles, and techniques in venereal disease contact investigation. Howard Ennes, Jr., and T. G. Bennett. 29: 647–666, Nov. 1945.

(Penicillin in late syphilis.) Correspondence. Letters submitted to the editor. Evan W. Thomas. John H. Stokes. 29: 667–668, Nov. 1945.

The relative prophylactic effectiveness against syphilis of ointments containing calomel in different particle size. William L. Fleming and Mary H. Wolf. 30: 47–53, Jan. 1946.

Congenital syphilis. Report of possible third generation syphilis with fatal spontaneous cerebral hemorrhage. Laurence J. Underwood. 30: 54–57, Jan. 1946.

Syphilitic vascular or cardiovascular disease occurring in early adult life following acquired syphilitic infection. Ira Leo Schamberg. 30: 58–69. Jan. 1946.

The relative efficacy of three treatment routines for gonorrheal urethritis in the adult male. Abraham Gelperin and Thomas Coleman. 30: 82–86, Jan. 1946.

The serologic differentiation of syphilitic and false positive sera.—This study was undertaken to determine whether positive blood serologic tests due to syphilis may be differentiated from those due to other factors by means of serologic methods at present available.

Serums were obtained from the following sources: syphilis patients from the Syphilis Division of the Johns Hopkins Hospital and from the private practice of one of the authors; patients having biologic false positive serologic tests for syphilis, who were divided into those known or presumed not to have syphilis and those of undetermined status; a normal group recruited from the hospital and clinic staff; and animal serum from cows and horses. Approximately 50 cc. of blood was obtained from each individual, preserved in merthiolate, and shipped to various laboratories for the performance of numerous serologic tests.

Results of the various tests are given for serum specimens from individuals with the following types of conditions: untreated primary syphilis, untreated secondary and late acquired syphilis, treated early and late acquired syphilis, untreated and treated late congenital syphilis, and late neurosyphilis (before, during, and after induced malaria). Also presented are results of tests on serums of individuals with known and presumed biologic false positive reactions, on serums of normal individuals, on animal serums, and on diluted high-titered serums tested with the Kahn "verification" test and Rein special technics.

According to this study, it appears that there is no "serologic pattern" with the tests employed which will differentiate "true" from "false" reactions, or one type of syphilitic infection (congenital) from another (acquired), and that special, supposedly verifying technics (Kahn, Rein, spirochetal complement fixation tests) do not serve to differentiate "true" from "false" positive reactors but rather tend to measure height of reagin titer. With presently available technics, therefore, the diagnosis of "true" versus "false" positivity could not be established by examination of a single specimen of serum, either by any single test or by combination of tests. Until new serologic methods can be developed, differential diagnosis between syphilis and other "reagin producing" diseases must continue to be made by clinical examination, consideration of epidemiologic factors, and by serial quantitative serologic tests, repeated over periods ranging from days to years.

The prognosis of syphilis. A critical review of clinical, autopsy, and life insurance studies.—This paper summarizes and critically reviews literature bearing on the statistical prognosis of syphilis as based on governmental mortality reports, clinical studies, death and autopsy findings, and life insurance studies in the twentieth century.

The older studies are found to be untrustworthy because of factors of selection and attributing to syphilis deaths caused by other diseases. In American life insurance studies, the increased prevalence of syphilis in the lower socioeconomic groups with a higher death rate introduces a major distortion. Misstatements on death certificates, along with inadequate criteria of cure and of adequacy of treatment, play an additional part in the accuracy of such studies, which are, moreover, based on only a small fraction of insured syphilitic individuals.

The author states that there is no evidence to show that syphilis adversely influences life expectancy except through the effects of its late manifestations in the central nervous and cardiovascular systems. Syphilitic infection in itself does not predispose the patient to tuberculosis
or other nonsyphilitic disease, and a
quate antisyphilitic treatment will, in
majority of cases, prevent the devel
ment of late manifestations of the disea
On the basis of simple and well-accep
laboratory procedures, life insura
companies may insure at standard ra
the majority of syphilitic patients ap
ing for insurance with no risk of increa
death losses.

The Syphilis Study at Johns Hopk
University is laying the groundwork fo
study in which mortality due direc
and indirectly to syphilis can be ac
rately measured, by giving long-te
comparisons of death rates in syphili
and nonsyphilitic populations similar
respect to age, race, sex, socioecono
status, and geographic location. T
Syphilis Study Master File organized
1937 is a card file indexed by name
lating to the syphilis status of reside
of the Eastern Health District. Remov
of newly acquired infections to the
philitic file serves to maintain the curre
syphilitic status of the community, a
entry on the cards of the stage and ty
of infection, the amount of treatment
ceived, and the causes of death affords
basis for comparison of death rat
among comparable syphilitic and no
syphilitic groups.

The retardation and suppression of e
perimental early syphilis by small dos
of penicillin comparable to those used
the treatment of gonorrhea.—Small do
ages of penicillin, similar to those us
in treating gonorrhea in man, admini
tered to rabbits having early syphilis a
reported as materially modifying th
syphilitic infection. The material a
methods in this study are described a
the authors review the literature.

Results of the intramuscular admini
tration of 400 units per kilogram of pen
cillin every 3 hours for 5 injections, tota
ing 2,000 units per kilogram, are pr
sented. This dosage, which is reporte
as less than one-thirty-second of th
amount necessary to cure an establishe
syphilitic infection in rabbits, aborted th
infection or prolonged the incubation p
riod. The authors state that the earlie

icillin treatment was started during incubation period and the smaller the ount of inoculum used, the more defiely the lesions were suppressed. The hors consider the failure of the lesion develop after a small dosage schedule penicillin to be due to an actual aborn of the infection rather than suppresn of the development of the primary on.

lthough no asymptomatic infections re observed in the rabbits, many of delayed lesions were so small that nparable lesions in man might not be ected, thus producing a theoretical mptomatic condition. Because peniin therapy for gonorrhea may abort, ay, or produce "asymptomatic" acred syphilitic infections, it is recomnded that gonorrhea patients be obved clinically and serologically for 4 nths or longer.

tudies on liver function. I. Liver iction in early syphilis before and dur- ; massive arsenotherapy.—This study s made to determine whether the rection of the concentration of prothromn in the blood observed in patients reving intensive arsenotherapy for philis was accompanied by impairment other functions of the liver.

Twenty-two previously untreated pants receiving mapharsen for early philis via the 5-day intravenous method re studied. The liver function was demined by the blood prothrombin conntration, the serum bilirubin level, the ention of bromsulfalein administered ravenously, and by the rate of hipric acid synthesis.

Only 3 patients in this series had rmal liver function tests prior to treatent. In 21 of the 22 patients observed, e administration of massive doses of senicals was accompanied by a fall of e level of prothrombin in the blood. nong 10 patients, at least one of the her tests showed impairment of the er function. In 2 patients an increase the concentration of serum bilirubin s noted with the administration of senicals; in 8 patients the retention of omsulfalein became abnormal or more marked; and in 5 patients the hippuric acid excretion, which was impaired initially, became normal during the course of treatment. The liver function of all patients, as judged by the blood prothrombin level, returned to normal within 6 months after arsenotherapy ceased.

For comparison, the authors also studied prothrombin concentrations in 10 patients with early syphilis receiving less intensive arsenotherapy. The patients selected all had normal concentrations prior to treatment. In no case did weekly tests reveal significant declines in prothrombin concentration during a 10-week schedule of twice-weekly injections of 0.06 gm. mapharsen with adjuvant bismuth subsalicylate.

The authors conclude from this and other studies that although hepatic damage results from massive arsenotherapy, this damage is not permanent, nor is it sufficient to cause clinically recognizable liver disease.

Lymphogranuloma venereum. Diagnostic aids: I. The formol-gel test.—A detailed account is presented of the formol-gel test to determine the presence of hyperglobulinemia in lymphogranuloma venereum. Changes in both viscosity and transparency are involved in the interpretation of the test.

Formol-gel tests and albumin-globulin ratio determinations were performed on 42 patients having lymphogranuloma venereum, with 90.5 percent revealing a positive test and showing hyperglobulinemia after the disease had been present 3 weeks or, in some cases, earlier. In a series of patients having no detectable lesions but showing positive Frei tests, abnormal elevation of seroglobulins was observed in 54 percent if a history of previous disease was obtained, and among patients giving no history of infection, hyperglobulinemia was demonstrated in only 22 percent. A return to normal after clinical cure was noted in 84.7 percent of 15 patients followed for 16 weeks. Among 58 syphilitic patients, 12 had positive formol-gel tests, all 40 of the chancroid cases gave negative tests, and among 6 patients having granuloma inguinale the test was positive in 1 case.

The relative value of hyperglobulinemia in determining the degree of activity of the disease is pointed out. A recommendation is made for the use of formol-gel tests and albumin-globulin ratios on lymphogranuloma venereum patients as aids in treatment and as an indication of biologic cure.

Inguinal lymphogranuloma venereum in the male. A study of 750 consecutive cases from Panama.—The author reports on the treatment and clinical cure of 750 males having inguinal adenitis, admitted to a hospital in Panama over a period of 7 years. The diagnosis of lymphogranuloma venereum in all these patients was based on a positive skin test reaction, or a "positive" pathologic report on tissue specimens. The incidence of lymphogranuloma venereum was about 6.1 per 1,000 male hospital admissions. An analysis of clinical data revealed 61.3 percent of the patients in this series to be in the third decade; 36.1 percent were United States white persons, 25.2 percent mestizos, 11.1 percent West Indian Negroes, and 27.6 percent a heterogenous group. Racial reactions to lymphogranuloma venereum or its treatment were not noticeable.

Among 279 patients having penile lesions upon admission, 100 presented possible primary lesions of lymphogranuloma venereum. General symptomatology was not different from the usual systemic reactions to this disease. Chancroid was concomitant with lymphogranuloma venereum in 157 patients. Chancres were observed in 18 patients and 89 had other forms of syphilis concomitantly.

Sulfathiazole was used in 74.0 percent of the cases, the remainder receiving sulfanilamide and sulfadiazine with good results throughout. Among patients having fluctuant lymph nodes, partial adenectomy was used as adjunct therapy, with total postoperative disability averaging 19½ days for patients receiving chemotherapy and 22.3 days for patients having no sulfonamide treatment. Minor complications were noted in 5.8 percent of the total number of patients having partial adenectomies, as compared with co plications in 15.9 percent of the patie medically treated.

Conditions peculiar to the Pana Canal region are reported as responsil for any differences between this seri and those described elsewhere. The a thor points out that chemotherapy is or a part of effective treatment, and that reduced but did not eliminate the occu rence of fluctuant buboes. It is observ that patients entering the hospital wi draining sinuses generally had clean granulating operative wounds. Noti recent experimental evidence that sulfo amides do not necessarily cure lymph granuloma venereum but rather alter to latency, the author claims only reli of clinical symptoms for the treatme plan described.

Studies on chancroid. II. Efficiency the cultural method of diagnosis.—Th authors report and analyze the results a study of the cultural method for dia nosing chancroid involving 125 patien suspected of having chancroid or lymph granuloma venereum. In 60 proved cas of chancroid, cultural diagnosis was su cessful in 50 (83.3 percent), and th Ducrey bacillus was isolated in pure cu ture in 19 of the 50 cases. In 42 of th 50 cases, diagnosis by culture of primar lesions was successful. Ducrey bacil were grown in 11 of 24 cultures fro bubo cases, and lesions were produced b autoinoculation in 20 cases. The cultur method of diagnosis was more efficien in males than in females in this series.

The authors make the following evalu ations: the Ducrey bacillus grows well i media containing a body fluid. One fa tor limiting the value of the cultura method as a diagnostic procedure is th failure of the Ducrey bacillus to grow we in association with other bacteria. Th medium giving the best results for th growth of the Ducrey bacillus along wit other growing bacteria was defibrinate rabbit blood. The use of a very sma inoculum from the genital lesion is con sidered important. Reasonably certai diagnosis can be made from examinin stained smears of rabbit blood cultures nowledge of the variation in appear- of the organisms under different litions is essential in the success of cultural method for diagnosis, and it stimated that a diagnosis by this hod can be made in at least 75 percent ll cases of chancroid.

REV. SOVIET MED., NEW YORK

enereal disease control in the USSR. N. Mashkilleison and V. A. Rakhmanov. 3: 100–105, Dec. 1945.

ismuth in the treatment of syphilis. N. S. Vedrov. 3: 106–115, Dec. 1945.

enereal disease control in the SR.—An outline of the work of matologists and venereologists in iet Russia is given, including the ctions of the regional venereal dis- e clinics under the sponsorship of the ple's Commissariat of Public Health. n 1913 and 1914, according to the hors, an average of 180.37 venereal ease cases per 10,000 population was orded in Russia, with only 12 venereal ease clinics in operation. In 1921 and 2, work on venereal disease control s started. By 1924 there were 80 ve- eal disease clinics and stations in rural d city areas; in 1925 there were 238 h institutions; by Jan. 1, 1941, there re 2,605 clinics, stations, offices, and isions. The authors report that with- 5 years after venereal disease control d been instituted, the number of philis cases in the cities had been re- ced to 120.32 per 10,000 population, and years after this the number was fur- er reduced to 18.6 per 10,000 popula- n, a level which continued. Special dical divisions sent to the highly in- cted areas of central Asia resulted in reduction of syphilis cases by 70 rcent.

Relapses (sic) were 1.9 percent in 1939 compared with 5.4 percent in 1933. At e Leningrad Dermatologic-Venereologic stitute during the years preceding e war, 1 to 2 relapse cases per year ere noted. It is stated that in 1939 only 1 percent of discovered syphilis cases as new, and that the incidence of rtiary syphilis, which was greater than at of other forms before the revolution, owed an impressive reduction.

In Czarist Russia, 35 to 40 percent of all syphilis cases were congenital whereas before World War II this form had become rare. In 1913 the incidence of soft chancre (chancroid) was 51.4 cases per 10,000 population in the cities, but by 1941 only isolated cases of this disease were noted throughout Russia. A comparison between the incidence of gonorrhea in 1936 and 1940 in 18 of the cities of the USSR showed a reduction of 25.3 percent.

The incidence of venereal diseases increased during the war and during occupation. In 1944, 41 mobile venereologic divisions established 239 venereologic institutions in liberated areas. A series of decrees published by the People's Commissariat of Public Health of the USSR during the war included compulsory reporting and hospitalization of infectious syphilis cases, restoration of venereal disease institutions, emphasis on venereal disease control through short courses on the diagnosis and treatment of venereal disease for general medical practitioners, training of venereologists, adequate supplies for medical organizations, and the formation of city departments for case finding within the Department of Public Health.

Extensive scientific research by Soviet syphilologists is reported.

ARCH. DERMAT. & SYPH., CHICAGO

Allergic reactions during the administration of penicillin. John Henderson Lamb. 52: 93–95, Aug. 1945.

Fever and sterile abscess formation accompanying treatment of syphilis with penicillin. M. Edward Goebel and Arthur W. Grace. 52: 399–400, Nov.–Dec. 1945.

ARCH. SURG., CHICAGO

Lesions of the spinal epidural space producing cord compression. Henry A. Shenkin, Robert C. Horn, Jr., and Francis C. Grant. 51: 125–146, Oct. 1945.

BOL. OFIC. SAN. PANAM., WASHINGTON

La sanidad en la República Dominicana. (Public health in the Dominican Republic.) Luis F. Thomen. 24: 865–878, Oct. 1945.

Principal causes of death in the United States and Latin America. 24: 935–936, Oct. 1945.

BRIT. J. OPTH., LONDON

Penicillin in ophthalmology. Arnold Sorsby. 29: 511–536, Oct. 1945.

BRIT. J. VEN. DIS., LONDON

Syphilis in the seventeenth century Lancashire. R. Sharpe France and A. Fessler. Annotations. 21 : 177–178, Dec. 1945.

Genital oedema in relation to filariasis in the Gold Coast. R. R. Willcox. Annotations. 21 : 178–179, Dec. 1945.

BRIT. M. J., LONDON

Control of neurosyphilis. Letters, Notes, and Answers. No. 4432 : 870–871, Dec. 15, 1945.

Penicillin by intramuscular drip. Martin Stratford. No. 4436 : 68, Jan. 12, 1946.

BULL. ACAD. MED., CLEVELAND

*Quantitative serological tests in syphilis. Roy L. Kile and Herbert Lund. 30 : 10, 24, Nov. 1945.

Quantitative serological tests in syphilis.—Qualitative tests giving positive or negative results of a single reaction have customarily been used in the serology of syphilis. While quantitative tests done either with flocculation or complement fixation are often valuable they are infrequently used.

Quantitative tests are valuable in determining the rise or fall of titer in congenital syphilis and in neurosyphilis, often denoting impending clinical relapse. Routine qualitative tests may remain positive for a period of time after treatment, but quantitative tests will exhibit the gradual drop in titer which occurs.

Quantitative tests require a higher degree of technical skill and a larger amount of serum than qualitative tests, and so are not suitable for large public health laboratories where the time, funds, and personnel are not usually available. While the physician can diagnose and treat syphilis without quantitative serologic tests, he will find such tests of assistance in many cases.

BULL. U. S. ARMY M. DEPT., CARLISLE BARRACKS

Meeting on public health planning in German occupied zone. 5 : 142–145, Feb. 1946.

CALIFORNIA'S HEALTH, SACRAMENTO

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ment described.) A. G. Chevalier.
259–263, Feb. 1946.

CIENCIA, MEXICO

Las moscas del género Hippelates como p
ibles vectores del mal del pinto (
comunicacion). (Flies of the Ger
Musca as possible vectors of pint
G. Soberón Y Parra and F. León
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CONNECTICUT M. J., HARTFORD

*Cardiovascular syphilis: An approach
early clinical recognition and early tre
ment. Morris Dressler. 9 : 844–854, N
1945.

**Cardiovascular syphilis: An approa
to early clinical recognition and ear
treatment.**—A study was made of 1,2
cases of proved syphilis to evolve a p
sible method of early diagnosis. Of the
cases, 24 percent were diagnosed clinical
as uncomplicated aortitis, and 30.7 p
cent as cardiovascular syphilis. Of t
latter group, 78 percent were uncomp
cated aortitis cases. The proportion
males to females was approximately 2
1, and the proportion of the white to t
Negro race about the same.

The author reports that the results
his study indicate that uncomplicat
syphilitic aortitis is an asymptomatic
sease. The following criteria are esta
lished for diagnosing uncomplicat
aortitis in patients 40 years of age
younger: the presence of a typical aort
second sound, suprasternal pulsations, i
creased retromanubrial dullness in t
second intercostal 'space, hypertensio
and the agreement of clinical findin
with fluoroscopy and roentgenography
demonstrate the presence or absence
widened aorta. Uncomplicated aortit
is proportionately twice as common
Negroes as in white persons of this a
group.

No valid reason is found for the pre
ence of the high percentage (47.4 percent
of hypertension among the cases
cardiovascular syphilis; however, the a
thor considers hypertension as a diagno
tic aid. Uncomplicated aortitis amo
persons with congenital syphilis is r
ported to be more common than heretofo
noted.

f 128 cardiovascular syphilis patients) recalled the chancre, a diagnosis of omplicated aortitis was made in 38 es within 10 years after the primary ection. Neurosyphilis was present in ; percent of the cardiovascular cases. 'luoroscopy and roentgenography are wn to be of value in confirming the ical diagnosis, and it is reported that omplicated aortitis can be diagnosed ically in a normal-sized aorta. Smaller es of less toxic drugs are recom- nded in the treatment of cardiovascu- syphilis for the prevention of death to the toxicity of certain drugs, isea and vomiting, therapeutic para- , and Herxheimer reactions. A pre- atory course of bismuth and iodides ore arsenical therapy is recommended. e course of treatment should be con- ued uninterruptedly for at least 2 rs. Herxheimer reactions are reported occur less frequently in patients receiv- penicillin therapy for primary and ondary syphilis, but the optimum dos- e is not yet determined.

A quite complete bibliography and dis- ssion of the literature pertaining to rdiovascular syphilis are included.

EALTH, TORONTO

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Discharged servicemen and venereal disease follow-up. I. Jay Brightman. 23: 5, 7, Jan. 14, 1946.

LINOIS M. J., OAK PARK

Para– and peri–urethral infections of the female urethra. Erwin H. Roeser and Herman L. Kretschmer. 89: 16–19, Jan. 1946.

ST. DU CANCER, PARIS UNIVERSITY, PARIS

Radium treatment of cancer of the penis. Y. L. Wickham and L. Dauvilliers. F. de R., 26: 3, 6. 1944–1945,

A. M. A., CHICAGO

*Intramuscular and subcutaneous administration of penicillin in beeswax-peanut oil. William M. M. Kirby, William Leifer, Samuel P. Martin and Charles H. Rammelkamp. 129: 940–944, Dec. 1, 1945.

*Nonspecific reactions in routine blood testing for syphilis. John H. Stokes, Fred Boerner, A. Parker Hitchens and Sondra Nemser. 130: 57–60, Jan. 12, 1946.

Effect of penicillin on course of early syphilis. William Leifer and Samuel P. Martin. 130: 202–205, Jan. 26, 1946.

Acetanilid and sulfhemoglobinemia. Queries and Minor Notes. 130: 314, Feb. 2, 1946.

Penicillin in spinal fluid after intravenous administration. George X. Schwemlein, Robert L. Barton, Theodore J. Bauer, Leo Loewe, Herman N. Bundesen and Robert M. Craig. 130: 340–341, Feb. 9, 1946.

Combined fever-penicillin therapy. Current Comment. 130: 350, Feb. 9, 1946.

Mississippi. Bills introduced. Medical (State) legislation. 130: 434, Feb. 16, 1946.

Reactions for syphilis following malaria and dengue. Arthur A. Rodriquez. Queries and Minor Notes. 130: 466, Feb. 16, 1946.

*Streptomycin resistance of gonococci and meningococci. C. Phillip Miller and Marjorie Bohnhoff. 130: 485–488, Feb. 23, 1946.

Bismuth therapy of syphilis. Foreign Letters. France. 130: 527–528, Feb. 23, 1946.

Gonococcus culture. Foreign Letters. Sweden. 130: 529, Feb. 23, 1946.

Intramuscular and subcutaneous administration of penicillin in beeswax-peanut oil.—A preliminary study is made of the results of 359 intramuscular and subcutaneous injections of a penicillin-beeswax-peanut oil mixture containing 4.8 percent beeswax and 300,000 units of penicillin per cubic centimeter to determine the absorption and excretion of penicillin, results of which revealed wide variability. In 54 patients with acute gonococcic urethritis who received single intramuscular injections of 300,000 units (1 cc.) of the mixture, a variation was reported of from 4 to 28 hours in the total duration of assayable levels of penicillin in the blood stream. In 37 (69 percent) of the patients, levels were present no longer than 12 hours. In 17 patients (31 percent), levels were present for 16 to 28 hours, with assayable levels not present on 1 or more occasions in 9 patients.

Excretion of penicillin in the urine was reported to decline rapidly after the first 12 hours, but small amounts were detected for more than 72 hours. In 35 syphilitic patients receiving intramuscular injections of the mixture daily for 8 days, assayable levels of penicillin were present 24 hours after each injection in only 20 of 275 injections (approximately 7 percent). Assayable levels were present at 24 hours no more frequently after several single daily doses than after a single injection.

Subcutaneous administration results were reported as superior to results following intramuscular injection in uniformity of absorption as well as blood level prolongation, penicillin being present in the blood of two-thirds of the patients for 20 hours or more.

The authors conclude that penicillin-beeswax-peanut oil mixtures provide an effective and safe method of prolonging the action of penicillin, even though larger amounts of penicillin are required than when aqueous solutions of penicillin are given every 3 hours.

In an addendum the authors state that since the completion of this manuscript it has been found that in most patients assayable levels of penicillin are present in the blood for 24 hours or more following single subcutaneous injections of 600,000 units (2 cc.) of the penicillin-beeswax-peanut oil mixture.

Nonspecific reactions in routine blood testing for syphilis.—Among 210,261 Red Cross blood donor specimens collected over a 9-month period from January to September 1944, 489 gave definite positive reactions to serologic tests for syphilis. Of these, 79 were selected for intensive follow-up and evaluation, and 19 additional cases from the private practices of the authors were included in the study.

Among the 79 Red Cross donors with positive blood reactions, 40.5 percent were finally adjudged to have syphilis, only 3 cases being technical false positives. The final diagnosis was completed in less than 3 months in 69.2 percent of the syphilis cases, but only 22 percent of the nonspecific positive cases were diagnosed within that time period.

Clinical history and examination gave little help in reaching the final diagnosis because they were equivocal or un
formative in the great majorty of ca
Special studies, such as spinal fluid
aminations, heterophile tests, rad
graphic examinations, and special fam
studies, also were disappointing.
only definite conclusion reached conce
ing these latter procedures was that
spinal fluid examination is not necessar
indicated by the presence of a posit
serologic test of the blood, especia
when the titer is declining and there
no clinical signs or history of infecti

Elaborate serologic studies were c
ried out but not reported in detail. In t
majority of cases they formed the ba
for the final decision as to the presence
absence of infection. Batteries of te
evaluated according to the Boerner clas
fication procedure proved to be the m
satisfactory method of studying the m
terial. But there were many borderli
cases which were very difficult to deci
and the authors point out the possibili
that with the advent of penicillin it m
become all too easy to give treatment
doubtful cases.

**Streptomycin resistance of gonococ
and meningococci.**—In order to dete
mine the susceptibility of gonococci an
meningococci to streptomycin, 6 strain
of gonococcus and 96 strains of meni
gococcus were tested. A series of bloo
agar plates containing graded concentr
tions of streptomycin was inoculated wi
each strain and the highest concentratio
on which any colonies developed in
hours was accepted as the tolerance limi
Original tolerance varied from 8 to
units per cubic centimeter for the gon
coccus strains, and from 1 to 40 units p
cubic centimeter for the meningococc
strains.

Repeated subcultivation on strept
mycin agar produced, within 4 to 6 tran
fers, growths of gonococci and meni
gococci resistant to 75,000 units per cub
centimeter, the highest concentration e
ployed. Lack of supplies prevented th
determination of the ultimate limits
streptomycin resistance. Penicillin r
sistance, however, was developed by th
same strains at a much slower rate an

r reached levels suggesting the pos-
lity of absolute fastness.

onococci and meningococci strains in
o were found to be just as susceptible
treptomycin after they had become
stant to high concentrations of peni-
n as they were before. In fact, one
in of gonococcus became somewhat
e susceptible to streptomycin after it
acquired resistance to penicillin.

onococci and meningococci resistant
ither penicillin or streptomycin were
d to be susceptible to the other in
o, and the same correlation was ob-
ed in vivo with meningococci. None
the abnormal changes observed in
icillin resistant strains of gonococci
meningococci were noted in strepto-
in resistant strains.

t was concluded that the mode of ac-
of streptomycin on these micro-
anisms differs from that of penicillin.

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Notes on industrial cooperation. (V. D. education.) Percy Shostac. 31: 552–553, Nov. 1945.

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The people are with you. (Public opinion polls.) George Gallup. 31: 558–560, Nov. 1945.

Social hygiene in relation to the future of the family. Editorial. Ray Lyman Wilbur. 31: 561–563, Dec. 1945.

Time is short to meet our obligations. A memorandum on the urgency of putting into high gear a program of social hygiene education for military and home-front veterans. Howard W. Ennes, Jr. 31: 564–573, Dec. 1945.

Towards a new way of life. A progress report on work with prostitutes and promiscuous girls in the city of Baltimore. Mazie F. Rappaport. 31: 590–599, Dec. 1945.

Penicillin: Help or hindrance in venereal disease control? Charles Walter Clarke. 31: 600–604, Dec. 1945.

J. South Carolina M. A., Florence

Bacteriological and other studies in the public aspects of gonococcal infection. Harry Boatwright. 61: 160–165, July 1945.

J. Tennessee M. A., Nashville

*Serodiagnosis in syphilis. R. H. Kampmeier. 38: 404–409, Dec. 1945.

Serodiagnosis in syphilis.—The most difficult problem facing the physician in the field of syphilis is the evaluation or interpretation of serologic tests as related to diagnosis. The evaluation of a positive test in the individual patient may involve a nicety of judgment which taxes the physician to the utmost. Thousands of persons are undoubtedly placed under antisyphilitic treatment annually on the basis of one positive or doubtful test, the diagnosis of syphillis often being erroneous, whereas many doubtful tests for syphilis are probably disregarded when they should offer a clue to syphilis of the central nervous system or cardiovascular system.

In the evaluation of any test, the sensitivity (the percentage of true-positive reactions in bloods from known syphilitic donors) and the specificity (the percentage of negative reactions in bloods from presumably nonsyphilitic donors) must be taken into consideration. Laboratories vary greatly among themselves in these two categories even when using the same type of blood test. Specificity should be 99 to 100 percent, whereas sensitivity ranges around 80 percent, although with increased sensitivity there is a loss of specificity. It may be said, in general, that the complement fixation tests are the more specific, and the precipitation tests the more sensitive. Thus in early primary syphilis or in late or treated syphilis, the precipitation tests are more likely to be positive, the complement fixation possibly being negative. Irregular results may occur in some syphilitic serums as well as in false positive serums, although strongly positive blood will react to all procedures.

The reaction may be negative in the presence of syphilis because there is not enough free reagin (reacting substance) in the blood stream. In later stages with established seropositivity, due to treatment the reagin content may drop to such an extent that the blood becomes negative, or the blood test may reverse to a negative phase spontaneously without treatment after a period of years, even though active syphilis is present.

If frequent tests are made in a given case, fluctuations of the serologic reactions are often found, giving negative, doubtful, or positive results at intervals. Mohr and Smith showed that such reactions were not due to a fluctuation of reagin content of the serum, but that they reflected daily variations in sensitivity of the tests employed in the laboratory.

False positive tests may be a result of technical errors occurring in identifying specimen and report slip as well as in reporting results. Unclean laboratory glassware or the antigens themselves, due to adventitious materials, may cause false positive results. Studies indicate that many, if not all, human subjects have at least some of a substance in the blood which reacts with the antigen to give a positive result. Statistical analyses by both serologists and clinicians indicate that approximately 1 percent of the population has this substance in sufficient amounts to give positive reactions with diagnostic tests. These biologic false p
itive tests must be considered by the phy
cian faced with an apparently healt
person having a positive precipitati
test, a negative history for syphilis, a
no history of exposure.

In addition to the above group of
tients with biologic false positive re
tions, there exists another group sufferi
from one of several diseases known
produce positive reactions in some
stances. These diseases are due to eith
protozoan or virus infectious agents, b
terial infections rarely giving positi
tests. Among those due to protozoa a
yaws, bejel, pinta, kala azar, relapsi
fever, and rat-bite fever. Filariasis a
malaria may also give positive reactio
in the acute stages, disappearing afte
wards in the latent stage. The tests te
to be mildly positive or doubtful and va
from day to day from negative to positi
A positive blood test must not be dis
garded because of malaria in the pa
however. Of the diseases due to virus
infectious mononucleosis (frequent
mistaken for syphilis), vaccinia, lymph
granuloma venereum, atypical pneu
nia, and measles are often found to ca
false positive reactions. Leprosy is t
bacterial disease most frequently as
ciated with false positive tests for syp
lis, but there is no worthwile eviden
that tuberculosis causes such reactions.

The author outlines an approach
using the positive blood test as the so
factor in the diagnosis of syphilis, in a
cordance with the present practice at t
Vanderbilt University Hospital Syphi
Clinic. A negative history of syphilis
previous antisyphilitic treatment, a ne
ative physical examination and spin
fluid, and no evidence of disease capab
of giving false positive results are p
supposed. Cases are interpreted as f
lows: (1) persistently and repeated
positive reactions with both compleme
fixation and flocculation tests are a
cepted as establishing the diagnosis
syphilis, (2) persistently and repeated
positive flocculation tests with doubtf
complement fixation tests are consider
to mean syphilis, especially in the pre

of admitted and repeated sexual osure, (3) persistently and repeatedly itive flocculation tests with negative plement fixation tests are accepted as cating syphilis in persons who have sexually promiscuous for years (in sons denying sexual exposure, pro- ged study of the serologic reaction is icated), (4) fluctuating flocculation s with possibly an occasional doubtful plement fixation test cannot be ac- ted to mean syphilis. "Persistently repeatedly" means the taking of fre- nt tests for weeks or months as icated in a given case.

Ann. District of Columbia, Washington
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J. Australia, Sydney
A report of the treatment of seven cases of granuloma venereum with penicillin. F. Boyd Turner. 2: 366–367, Dec. 1, 1945.
ome laboratory findings pertaining to the clinical use of penicillin. Sydney D. Rubbo and Marjorie E. Davey. 2: 449–452, Dec. 22, 1945.

report of the treatment of seven es of granuloma venereum with peni- in.—Penicillin, administered parenter- and locally, was tried on 7 cases gnosed as granuloma inguinale with ondary infection. All patients except had received several series of anti- ny injections.

hirty thousand units of penicillin re administered parenterally every 3 rs during the day and every 4 hours at ht for 20 days. Parenteral adminis- tion was then discontinued and local lication of penicillin cream containing units of penicillin per gram was sub- tuted. The patients received various al dosages up to 4,110,000 units of peni- in.

lthough smears revealed no histologic nge, all patients showed clinical im- vement. Case reports are presented scribing recoveries and reactions. Of 7 patients, 2 have died, the autopsy of evealing tuberculosis. The lesions of atient have healed, those of 2 are heal- , 1 has reached a stationary condition, 1 has an active condition.

The author concludes that while penicillin had no direct effect on granuloma inguinale, it did cure the secondary infection and allowed epithelization to occur.

M. Officer, London
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M. Rec., Rutherford
The syphilitic brain and human destinies. Edward Podolsky. 159: 40–42, Jan. 1946.

Mem. Inst. Oswaldo Cruz, Rio de Janeiro
Ensaios terapêuticos com penicilina. I. Bouba (Framboesia, pian, yaws). Nota prévia. (The treatment of yaws with penicillin.) A. M. Da Cunha, A. E. A. Leão, F. N. Guimarães and H. T. Cardoso. 40: 195–200, Apr. 1944. (4 pls., English summary.)
Ensaios terapêuticos com penicilina. III. Bouba (Framboesia, pian, yaws). Penicilina de procedência americana, empregada em doses baixas também cura aparentemente esta enfermidade. (The treatment of yaws with penicillin.) A. M. Da Cunha, F. N. Guimarães, A. E. A. Leão and H. T. Cardoso. 41: 247–255, Oct. 1944. (5 figs., English summary.)

Mod. Hosp., Chicago
*Hospitals are concerned with new developments in venereal disease control. J. R. Heller, Jr. 66: 59–61, Jan. 1946.
The modern health center. Venereal disease clinic. Richard J. Neutra. 66: 46–54, Feb. 1946.

Hospitals are concerned with new developments in venereal disease control.—The author discusses the importance of the hospital and the private physician in venereal disease control. The return to the population of millions of young men and women in the age groups in which venereal disease occurs most frequently, no longer subject to control measures in the Armed Forces, greatly increases the possibility of new infections among civilians.

One of the most important factors in the treatment of venereal disease is the rapid treatment center, established as a wartime expedient but to be retained as a part of the postwar control program. From the beginning of the program to July 1945, rapid treatment centers had admitted approximately 160,000 patients, and at the beginning of the fiscal year patients were being admitted to 54 reporting centers at the rate of 180,000 a year, almost a quarter of the number of venereal disease cases reported annually in the United States.

Various new intensive treatment schedules were tried at the rapid treatment centers, with an average patient stay of 11 days for the treatment of syphilis. The short schedule of gonorrhea therapy involving a few minutes to 4 hours has removed gonorrhea cases from the centers and returned them to private physicians or to outpatient clinics. Hospitalization of the syphilis patient makes possible administration of drugs every 3 hours, day and night, to complete treatment within 9 days. Nearly 100 percent of all syphilis patients therefore complete the required amount of treatment, in contrast to the former 25 percent who completed the 70 weeks of arsenical and bismuth therapy.

The treatment of gonorrhea patients by private physicians should provide a valuable syphilis case-finding aid since many gonorrhea patients or their contacts are also infected with syphilis. It is suggested that the hospital, with routine blood tests on the approximately 15,000,000 patients admitted annually, could also be a potent aid in case finding, discovering many thousands of infectious venereal disease cases without too much effort.

New England J. Med., Boston

*Agranulocytosis following mapharsen therapy. A report of two cases treated with penicillin. Clinical Notes. 234 : 17–19, Jan. 3, 1946.

Agranulocytosis following mapharsen therapy. A report of two cases treated with penicillin.—Two cases of acute agranulocytosis — one with coexisting toxic hepatitis—attributable to mapharsen therapy for syphilis are reported.

The first case is that of a 21-year-old Negro soldier who developed a penile lesion with Treponema pallidum demonstrable by darkfield examination. Intensive therapy consisted of the daily intravenous injection of 0.066 gm. of mapharsen and the intramuscular injection of 0.2 gm. of bismuth subsalicylate in oil every 3 days. Treatment was continued for 8 days, but on the 9th d
the patient manifested a moderately s
vere Milian reaction and arsenothera
was omitted for 5 days, after which t
full dosages of mapharsen were given f
the next 6 days. Upon rise of temper
ture, however, arsenic and bismuth we
discontinued. Anorexia became mo
marked, accompanied by pain and swe
ing in the region of the left submaxilla
lymph nodes. On the 22nd and 23rd da
treatment was given consisting of 4 dai
injections of 100 mg. of BAL in oil,
addition to 40,000 units of penicillin giv
intramuscularly every 3 hours for 7
days. Recovery followed and the patie
was discharged on the 39th day, the peni
lesion having healed and the Kahn r
action being negative.

Case 2 presented similar symptoms, e
cept that mapharsen and bismuth we
permanently discontinued on the 9th d
following a moderately severe Milian r
action. Six days later a diagnosis
toxic hepatitis due to mapharsen w
made, and penicillin therapy was beg
in dosages of 40,000 units every 3 hou
for 7½ days. No BAL was given in th
case, and recovery was complete witho
its use. Penicillin was of great value
the 2 cases, both in combating sepsis a
in the treatment of the underlyi
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Suppression of early syphilis by sub-
erapeutic dosage of penicillin. Report
a case.—A case report is presented
monstrating the delay in diagnosis re-
lting from the administration of
),000 units of penicillin in treating in-
inal adenitis.

Examination of a 31-year-old white
ın revealed an almost completely healed
sion on the penis together with a bal-
oposthitis and a small right inguinal
enitis. Two different blood Kahn and
ei tests and darkfield examinations for
pallidum were negative. A diagnosis
balanoposthitis was made. The pa-
nt denied extramarital exposure and
s wife showed no evidence of syphilis. Sulfathiazole therapy was discontinued after occurrence of fever and macular toxic eruption.

Two days later the left inguinal lymph nodes were enlarged to walnut-size and were firm and tender, while the right inguinal nodes were peanut-size and nontender. Kahn and Frei tests were still negative. Swelling of the glands was subsiding and balanoposthitis was improved upon the patient's discharge.

The inguinal adenitis had become recrudescent at the patient's readmission 1 week later. The blood Kahn was again negative. A total of 200,000 units of penicillin was administered intramuscularly but no change in the inguinal lymph nodes was noted. Granulomatous lymph adenitis was revealed in a biopsy of one of the left inguinal glands. Sulfanilamide was administered, 1 gm. 4 times daily for 4 days, with no untoward reaction. Frei, Kahn, and von Pirquet tests were negative and the patient was discharged.

Upon the reappearance of a superficial penile lesion at the site of the first eruption 21 days later, the patient was again admitted. T. pallidum were not seen at darkfield examination and the Kahn test was negative. The penile lesion became more marked, and the appearance of a crop of pustular lesions over the symphysis pubis, upper thighs, and lower abdomen was noted, in addition to a typical maculopapular eruption of secondary syphilis over the trunk. Darkfield examination of one of the maculopapular lesions revealed many treponemas and the following day the Kahn test was strongly positive. The administration of 2,400,000 units of penicillin brought about rapid response of the cutaneous eruption and lymphadenopathy.

The authors assume that the original penile lesion was a resolving syphilitic chancre and that penicillin, administered approximately 24 days after its appearance, probably delayed the immunologic response. The literature is reviewed.

Special Reports

In January of this year a considerable proportion of the medical research program of the Office of Scientific Research and Development was transferred to the Research Grants Office of the National Institute of Health, U. S. Public Health Service. An important part of the activity transferred was the study of the effect of penicillin on syphilis, inaugurated in September 1943 under the direction of the Penicillin Panel, Subcommittee on Venereal Diseases, National Research Council.

The medical research transferred from the OSRD has been combined with the new grant-in-aid program for medical and public health research authorized by Congress in Public Law 410 (Public Health Service reorganization law). Headquarters are at the Institute in Bethesda, Md. Senior Surgeon C. J. Van Slyke, formerly assistant chief of the Venereal Disease Division, has been
placed in charge of the combined p
grams.

A consultant group known as the "Sy
ilis Study Section" has been appointed
advise the Public Health Service on g
eral policy and on financial grants to cli
cal investigators.

Participating in the syphilis inve
gations at the time of transfer were
cilities of the Army and Navy medi
corps, 12 U. S. Public Health Service ra
treatment centers, 6 laboratories, and
civilian clinics, mostly in university c
ters. Major studies currently being c
ducted include the usefulness of peni
lin in treatment of early acquired syph
in adults, prevention of prenatal syphi
and treatment of infantile congeni
syphilis, certain forms of ocular syphi
and neurosyphilis. The laboratories a
studying the effectiveness of commerc
penicillin and its available fractions
experimental syphilis in animals.

A series of regional seminars for medical officers in charge of rapid treatment centers on the use of penicillin in venereal disease control is being conducted by the Public Health Service.

The following is a digest of some of the principal points discussed at the meetings held thus far (Bethesda, Md., Feb. 9; New Orleans, La., Mar. 7).

The present inconclusive status of penicillin in syphilis is largely due to incomplete follow-up on patients. The most important single factor in successful follow-up is the manner in which patients are dealt with while under treatment. The patient's confidence must be gained through fair and straightforward handling. He must be impressed with the seriousness of his disease and the importance of regular reporting for diagnostic check-up. All staff members must have a mature, unbiased attitude toward the disease and sincere interest in the welfare of the patient.

The intensified case finding of present syphilis control efforts raises the question
as to whether larger numbers of the late
cases thus discovered should receive
tensive therapy. Because of the presum
noninfectivity of the latent stages the
may be some question as to whether th
is a public health need for free hospita
zation. On the other hand, the major
of patients treated under the older weel
injection schedules fail to receive t
minimum protective therapy and a co
siderable number thus relapse into
fectivity or go on to develop late co
plications, including neurosyphilis. Th
means further spread of infection an
ultimately, large public losses in mon
and productive work. If an effecti
single daily injection method for trea
ing syphilis with penicillin is found, pe
haps virtually all latent syphilis could
treated intensively on an outpatient bas
However, it is questionable whether mo
patients could be persuaded to report to
doctor's office or clinic for an injecti
on 10 or 15 consecutive days.

Editorial

(*Continued from page 113*)

5. Greater attention will be given, in both commercial and government research, to determining the effectiveness of the various fractions of penicillin, and to pharmacologic and therapeutic evaluation of various fractions of the so-called impurities, hitherto discarded in the process of refining the product for clinical use.

linicians were quick to recognize that penicillin therapy for gonorrhea
uired continued observation to guard against the possibility that con-
itantly acquired syphilis might have been suppressed or aborted by the
curative penicillin dosage. It is possible that something of the same
ation applies to syphilis patients treated with penicillin in which the
rrant "K" fraction predominated—they may have received what was,
ffect, a subcurative dosage.

uch situations as this should remind us all of the well recognized fact
t regardless of the drug and the treatment schedule used, it is good pro-
ure for the physician to explain to every patient both the necessity for
pleting treatment and for periodic check-ups. With any new type
therapy this becomes more than good procedure—it becomes an obliga-
n to the patient, to the public, and to the advancement of scientific
owledge.

here probably will never be sufficient public health funds and personnel
allow intensive individual follow-up on every patient treated for syph-
. However, this does not mean that too many patients must be lost, for
dence is accumulating which suggests that when patients are properly
tructed in a clinic or hospital where the staff is sincerely interested in
welfare of each individual, a large majority of the patients will report
untarily and consistently for their diagnostic check-up.

Ve reiterate that much remains to be learned about penicillin, its
nposition and mode of action, and its ultimate place in the treat-
nt of syphilis. Despite the most encouraging clinical evidence of
very real value in sterilizing early lesions, and its great apparent use-
ness against syphilis in pregnancy, and central nervous system syphilis,
annot yet be said that penicillin is more effective than arsenical-bismuth
rapy from the standpoint of producing "cures." Several years of obser-
ion on several thousands of patients treated under the various sched-
s will be necessary before a dependable evaluation can be made.

he experience with penicillin species "K" emphasizes the interdepend-
ce of industry, laboratories, treatment sources, and public and private
encies in promoting the control of syphilis.

Cases of Syphilis and Gonorrhea Reported for the First Time in States, Territorie and Possessions, in the month of January 1946, compared with the Average Month Admissions for the Year 1945

Area	Syphilis										Gonorrhea	
	Total[1]		Primary and secondary		Early latent		Late and late latent		Congenital			
	Jan.	Av. 1945	Jan.	Av. 1945	Jan.	Av. 1945	Jan.	Av. 1945	Jan.	Av. 1945	Jan.	Av 194
Alabama	781	1,224	176	218	232	430	69	247	26	35	899	9
Arizona	198	122	81	34	52	36	52	44	13	7	138	1
Arkansas	1,036	1,217	243	346	395	425	350	360	46	50	705	6
California	2,313	2,446	570	451	638	631	986	1,198	75	63	3,046	2,3
Colorado	247	194	96	58	63	49	76	80	12	7	246	1
Connecticut	183	190	42	25	31	48	85	88	6	5	123	1
Delaware	51	33	20	10	14	10	7	7	1	2	20	
Dist. Columbia	163	283	35	65	76	95	38	105	5	8	427	5
Florida	890	1,336	176	202	328	557	277	434	27	41	1,246	1,1
Georgia	(4)	(5)	(4)	(5)	(4)	(5)	(4)	(5)	(4)	(5)	(4)	(5)
Idaho	53	64	16	12	12	17	14	27	1	2	49	
Illinois	2,015	1,789	522	335	651	448	772	959	70	48	3,237	2,1
Indiana	493	483	139	97	72	54	172	164	11	13	316	2
Iowa	124	111	44	28	35	34	33	38	4	4	203	1
Kansas	144	178	49	39	40	37	52	94	3	8	234	1
Kentucky	716	427	333	147	168	110	119	110	25	20	860	5
Louisiana	1,158	977	345	220	351	280	161	216	37	51	950	7
Maine	(4)	60	(4)	21	(4)	10	(4)	23	(4)	3	(4)	
Maryland	651	891	204	157	142	204	126	237	17	15	465	4
Massachusetts	571	338	254	86	------	------	298	230	19	18	587	3
Michigan	1,425	1,327	390	277	377	371	438	488	30	31	1,230	9
Minnesota	98	106	34	21	14	17	43	59	1	4	200	2
Mississippi	2,064	1,788	685	570	727	604	575	529	77	78	3,173	2,6
Missouri	939	790	268	197	345	248	291	293	15	27	844	6
Montana	29	32	10	6	7	2	4	10	------	2	39	
Nebraska	136	87	38	19	52	24	40	36	4	3	134	
Nevada	34	38	9	8	------	1	8	15	2	1	26	
New Hampshire	24	30	6	5	5	4	13	18	------	2	44	
New Jersey	899	741	172	110	286	224	411	374	23	25	487	4
New Mexico	105	156	15	31	33	45	54	70	3	10	158	1
New York	(4)	2,521	(4)	537	(4)	578	(4)	1,319	(4)	69	[2] 2,020	[2] 1,4
North Carolina	676	665	323	238	235	247	87	145	31	31	1,016	8
North Dakota	40	19	18	4	5	4	9	6	------	1	97	
Ohio	1,413	1,673	420	390	421	449	530	744	42	56	711	5
Oklahoma	479	539	93	92	158	155	117	152	23	25	710	7
Oregon	104	137	29	34	10	17	56	74	------	5	222	2
Pennsylvania	703	860	183	170	224	346	243	282	34	39	[3] 300	[3] 2
Rhode Island	121	87	45	19	14	8	44	48	4	2	61	
South Carolina	405	579	141	189	129	183	99	151	19	37	643	6
South Dakota	33	33	14	8	6	7	12	16	1	2	78	
Tennessee	1,002	990	300	216	395	404	294	339	9	27	1,607	1,3
Texas	845	1,110	278	292	351	492	177	247	38	47	1,256	1,3
Utah	36	38	16	8	11	10	9	19	------	1	56	
Vermont	17	12	3	2	------	2	12	5	2	1	40	
Virginia	888	777	227	241	396	302	238	196	24	31	995	6
Washington	271	275	65	55	82	79	94	111	8	7	492	4
West Virginia	401	316	238	157	91	76	60	68	9	10	744	5
Wisconsin	231	180	64	41	49	3	108	135	2	1	153	1
Wyoming	22	31	8	6	9	9	4	10	------	------	18	
Total United States	25,227	28,300	7,437	6,494	7,732	8,386	7,757	10,620	799	975	31,305	25,2
Alaska	11	11	2	3	------	2	4	2	1	------	66	
Canal Zone	30	71	7	7	6	19	14	40	------	1	69	
Hawaii	84	45	6	2	1	5	66	35	11	3	40	
Puerto Rico	727	705	107	86	254	239	197	203	168	172	572	5
Virgin Islands	9	13	------	3	6	7	3	2	------	------	24	1
Total United States and Possessions	26,088	29,145	7,559	6,595	7,999	8,658	8,041	10,902	979	1,151	32,076	25,9

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[1] Includes "not stated."

[2] New York City only.

[3] Philadelphia only.

[4] Reports not received for January.

[5] Georgia incomplete for 1945.

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The JOURNAL *of* VENEREAL DISEASE INFORMATION

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Federal Security Agency
UNITED STATES PUBLIC HEALTH SERVICE

FEDERAL SECURITY AGENCY

UNITED STATES PUBLIC HEALTH SERVICE

THOMAS PARRAN, *Surgeon General*

Editor: J. R. HELLER, Jr., *Medical Director*
Chief, Venereal Disease Division

Approved by the Director, Bureau of the Budget, as required
by Rule 42, of the Joint Committee

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National Venereal Disease Control

Report of the Committee on Venereal Disease Control to the State and Territorial Health Officers' Association, April 1946

During the past year the Committee on Venereal Disease Control has enjoyed several advantages which have contributed to the making of this report. At the request of the chairman, members of the Committee cooperated in sending questionnaires to all State and Territorial health departments in order to obtain information on various phases of venereal disease control. Replies from a large number of health departments have yielded worth-while data which have been incorporated in our considerations of this report. The clinic cost analysis has been of inestimable value to the Committee as well as to the U. S. Public Health Service in evaluating control activities and in the making of several recommendations. In December 1945 members of the Committee or their representatives met in Chicago and appreciated the opportunity of discussing a number of items with Dr. J. R. Heller, Jr., and his staff. These opportunities, therefore, have enabled us to take advantage of the thinking and experience of a large group of individuals who are vitally interested in venereal disease control and we sincerely hope that our recommendations which follow will serve to stimulate and improve the fight against syphilis and gonorrhea during this postwar period.

I. POSTTREATMENT FOLLOW-UP

With the development of rapid treatment for early syphilis and a more efficient cure for gonorrhea, the need for posttreatment follow-up has been reduced materially. This is especially true for those patients receiving the 5-12-3 plan of treatment (5 injections of an arsenical, 1,200,000 units of penicillin, and 3 injections of bismuth) and other similar schedules which are known to cure, as best as can be determined at present, 80 to 90 percent of patients. We realize, of course, that the last word on penicillin therapy has not been reached and even present schedules of treatment and ideas concerning their efficiency are under modification. There are reasons to think that these forms of therapy may even be improved as research continues and certainly posttreatment follow-up will be needed to evaluate present and future treatment schedules. On the basis of what is already known, however, it is believed by the Committee that active follow-up involving field visits should be limited to patients treated in large research centers where adequate investigation procedures are maintained. The clinic cost analysis reveals that approximately 3.6 percent of venereal disease control expenditures, exclusive of rapid treatment centers, is devoted to the investigation of lapsed cases. The cost for follow-up per lapsed case returned to treatment ranges from 82 cents to $50.33, an average being $2.76. In view of the efficiency of modern treatment methods, such expenditure is not justified in general and it is believed that the elimination of posttreatment follow-up field visits would permit the placing of greater emphasis on case finding as well as reduce the cost of venereal disease control. It is, therefore, recommended by this Committee that health departments, excepting those designated to carry on research, should abandon all posttreatment follow-up field visits as they relate to the following types of cases:

A. Gonorrhea adequately treated with penicillin.

The Committee on Venereal Disease Control is composed of Roland R. Cross, M. D., chairman, Springfield, Ill.; William F. Cogswell, M. D., Helena, Mont.; William DeKleine, M. D., Lansing, Mich.; Roger E. Heering, M. D., Columbus, Ohio; L. J. Lull, M. D., Denver, Colo.; and Edward A. McLaughlin, M. D., Providence, R. I.

B. Early syphilis following adequate rapid treatment.

C. Late latent syphilis regardless of therapy.

D. Late syphilis regardless of therapy. In making such a recommendation, the Committee is not underestimating the need for and the value of stressing the education of the patient while at the treatment center and encouraging his voluntary return for periodic posttreatment examination. The need for this activity is based upon the possibility of clinical relapses and the fact that treatment does not prevent reinfection.

II. DEVELOPMENT OF LOCAL RAPID TREATMENT FACILITIES

Over and above the advantage already mentioned, the rapid treatment of syphilis benefits both the patient and the health officer by rendering a highly communicable disease noninfectious in a quick, safe, and efficient manner. Such treatment, however, requires hospitalization.

In urban areas the development of independent rapid treatment centers has been a very practical undertaking. Cost analyses have determined that a minimum daily average census of 35 cases is necessary for the economical operation of such centers. In well-integrated areas where that minimum can be equaled or exceeded, separate centers should be established if the physical facilities are available. In many instances, desirable facilities in excess of the needs of the Army and Navy are now being released. The Public Health Service has succeeded in obtaining permission for their use.

In rural areas, on the other hand, independent rapid treatment centers, if they are to operate economically, will of necessity be few in number, serve large areas, and be associated with transportation difficulties. It would seem more practical to develop facilities within local communities to which patients may be referred more readily. This has been done successfully in several States by utilizing local general hospitals which have been paid a per diem rate for treatment and bed care in lieu of the development of large, centralized rapid treatment centers. The U. S. Public Health Service has made available special funds by which such projects may be established. In the face of a population which is constantly on the move and with the increasing number of contacts reported in the less urbanized areas, it would seem quite logical to widen the availability of modern treatment in this way. This is the thought which prompts the Committee to recommend that State and Territorial health departments encourage the development of rapid treatment facilities in local general hospitals in areas that cannot readily support independent rapid treatment centers.

III. THE PARTICIPATION OF PRIVATE PRACTITIONERS IN VENEREAL DISEASE CONTROL PROGRAMS

In any public health program, the cooperation of practicing physicians is essential if that program is to succeed. This is particularly true in venereal disease control since fully 50 percent of venereal disease patients are under the care of private physicians. It is obvious, therefore, that every effort should be made to strengthen the relationship between the health department and physicians engaged in private practice. Yet, as revealed by replies to questionnaires, it is seen that 12 out of 43 States and Territories reporting are able to investigate less than 30 percent of venereal disease cases reported by private physicians; 19 States did not reply to this question because either no data were available or no such program existed. At least 10 State health departments fail to clear policies in regard to clinics with local or State medical societies and more than two-thirds of the States do not clear with State societies on the matter of admission policies to rapid treatment centers. These findings would indicate that relationships between health departments and practicing physicians are not as strong as they might be.

A number of suggestions have been offered as means of improving cooperation. They are of sufficient importance to be mentioned here.

A. Venereal disease control policies

and procedures should be cleared with appropriate advisory committees of State and local medical societies. These organizations, in turn, may be extremely helpful in interpreting policies and procedures to their members.

B. Every effort should be made to place in physicians' hands authoritative information as to treatment schedules, available services, regulations, and policies. The Public Health Service could help by preparing materials on up-to-date treatment methods. Such information could reach the physician through (1) published periodic circulars, (2) articles prepared for medical journals, and (3) personal contacts between responsible members of the health department and private physicians.

C. Much can be accomplished by promoting better public health education in medical schools. Too many students leave these institutions with little or no appreciation of the public health aspects of disease, much less a knowledge of the purpose and functions of health departments. This suggestion might apply to the national as well as to the State and Territorial health authorities.

D. The payment of private physicians for time spent in referring patients to rapid treatment facilities is another method of securing better cooperation. While this suggestion may provoke debate in certain areas, very few States have looked into this possibility. In Illinois, at least, this method is working successfully with the approval of local medical societies and the Council of the State Medical Society. The Public Health Service has made funds available for this purpose.

E. The usual methods of securing cooperation through the free distribution of drugs, laboratory service, follow-up service for delinquents, lectures in medical societies, and personal contacts, should be continued and used to the best advantage.

Each of the foregoing suggestions is already in operation in at least one or more States, but in general their application has been somewhat limited. Inasmuch as one-half the problem is directly in the hands of physicians, it is extremely important that they appreciate the public health aspect of the diseases which we endeavor to control. It is, therefore, recommended by this Committee that Federal, State, and Territorial health authorities give serious consideration to the suggestions previously mentioned and develop ways and means which are best suited to their localities for improving cooperation between official health agencies and practicing physicians.

IV. VENEREAL DISEASE EDUCATION FOR THE GENERAL PUBLIC

While the physician's participation in the control program is essential, it is equally important that other professional groups, parents, church authorities, law enforcement officials, school administrators, labor unions and industry, as well as the general public, become aware of their responsibilities and the ways in which they can assist the venereal disease control program. The Report of the U. S. Public Health Service Advisory Committee on Public Education for the Prevention of Venereal Diseases, published in The Journal of Venereal Disease Information for December 1945, provides a comprehensive review of this subject and points out the need for a long-range general educational program of sustained intensity. According to our replies, very few States and Territories are carrying out such a program. A number of health departments are engaged in some form of venereal disease educational program in the schools but it would seem to this Committee that certain preliminary steps should be completed before such programs are attempted. Items to be considered include: what should be the content; how should it be presented; should it be a part of a general school health educational program; are the teachers and parents sufficiently prepared to accept their responsibilities?

Other States are emphasizing educational programs in relation to special groups. Still others are doing very little or nothing with regard to the entire problem. The lack of trained personnel has been perhaps the major reason. On the other hand, there are a number of State and Territorial educational programs which include individual items of merit; at least nine States are cooperating with departments of education in the training of teachers in health education. A large majority believe that venereal disease education should be a part of a continuous general health educational program, and the number of health educators with special training in community organization is increasing. All these gains are encouraging. It is the belief of the Committee, however, that a coordination of effort is lacking. The greatest need is for the development of a long-range educational program, general in scope, including all groups, continuous in duration. It is therefore recommended that the U. S. Public Health Service continue its efforts along these lines by developing educational materials of high quality, by assisting in the establishment of training centers, and by serving in an advisory capacity to health departments. It is also recommended that States and Territories encourage the utilization of health educators and other qualified persons for the development of an educational program that will benefit the local community.

V. SIMPLIFIED REPORTS REQUIRED BY VENEREAL DISEASE DIVISION, UNITED STATES PUBLIC HEALTH SERVICE

At the meeting of this Committee in December 1945, the Committee on Business Management, through Dr. Heller, presented for our approval certain suggestions for the simplification of reports submitted by State, Territorial, and local health departments as required by the U. S. Public Health Service. The Committee on Venereal Disease Control is generally in accord with these suggestions and recommends the adoption of the following changes:

A. That the Monthly Morbidity Report (8958–B) be changed to a quarterly report.

B. That the City Monthly Morbidity Report (VM–820) be changed to a quarterly report.

C. That the Clinic Monthly Report (8954–A) be revised as proposed by the U. S. Public Health Service in December 1945 and be changed to a quarterly report.

D. That the Semi-Annual Report of State Health Departments be revised as simplified by Form 8954–B prepared by the U. S. Public Health Service and be submitted quarterly as a supplement to the revised quarterly clinic report.

During this Committee meeting, consideration was also given to the development of a local venereal disease control plan and budget. It is known that 32 percent of funds allocated to the States is spent directly by the State health departments. The remaining 68 percent is spent by local health departments. At the present time, a plan and budget are required only at the State level, and it proposed that State health departments require the submission of a local plan and budget by each local health unit within their jurisdiction for three reasons: (a) to provide States with a basis for allotting funds to counties and cities, (b) to assist the States in planning an over-all venereal disease control program, and (c) to provide the U. S. Public Health Service with information which will justify its requests for Congressional funds. After deliberation, the Committee voted to go on record as approving the principle of the local plan and budget report with the recommendation that similar plans be developed for other grant-in-aid funds that are administered by the U. S. Public Health Service.

VI. THE USE OF POLICE POWER

There has come to the attention of this Committee an unfortunate isolated example of the injudicious use of police power resulting in legal proceedings which may undermine seriously the prestige of the local health department. It is known that similar, perhaps less serious, examples can be found elsewhere. While it is necessary at times to employ force in order to control those who willfully violate regulations and contribute to the spread of venereal disease, the general or frequent application of this means of controlling the individual will prove detrimental rather than helpful in the long run. Major emphasis should be given to education and persuasion.

The value of these media is exemplified by experience in Norfolk, Va. In the report concerning case finding, published in The Journal of Venereal Disease Information for June 1945, it is concluded that "more individuals with infectious lesions applied for aid than were brought under care by any other means. Because of this, community education should constantly stress availability of services."

Very few States have found it necessary to deputize venereal disease investigators with police power and while some States have found this practice to be successful under certain circumstances, there are others in which the practice has been abandoned. It is, therefore, the recommendation of this Committee that health departments rely on education and persuasion as the major control procedures and that the use of police power be limited to those individuals who cannot be controlled by other means.

VII. CLINIC COST ANALYSIS

During the early months of 1945, every State and Territory became aware of the arduous task of gathering data for the clinic cost analysis. Upon completion, however, this cost analysis developed considerable respect in that it opened our eyes to a number of weak spots in our venereal disease control program. Self-criticism associated with determination to strengthen the weaknesses in our program is far superior to the initiation of corrections because of criticism from without. In this respect, the clinic cost analysis has been a useful tool, and the Bureau of the Budget and the U. S. Public Health Service should be complimented on preparing this device. Because of its value, this Committee wishes to recommend that a clinic cost analysis be conducted at regular intervals, if not on a national scale, at least at the State level, in order that we may more effectively evaluate the various procedures of our program.

VIII. EIGHT POINT AGREEMENT

Consideration has been given to the continuation of the Eight Point Agreement relating to venereal disease control which has been in effect since 1940. This agreement has now been slightly modified for peacetime purposes and has been endorsed by the Interdepartmental Committee consisting of representatives of the War and Navy Departments and the Federal Security Agency.

The principles included in this agreement are believed to be sound and it is the recommendation of this Committee that the Association of State and Territorial Health Officers endorse the Eight Point Agreement as a valuable peacetime procedure contributing toward better venereal disease control through a continued understanding among the agencies which are vitally concerned with it.

Many of the foregoing recommendations of this Committee may imply that health departments have neglected their responsibilities. On the contrary, the record achieved during the war period, even with the advances in therapy, entitles civilian health authorities to a large share of credit. With depleted and ever changing staffs, they have accomplished much during a time when venereal disease rides more freely in our midst. The recommendations in this report are made with the hope that we may improve and strengthen our efforts to reduce venereal disease to a minimum.

Sensitivity of Neisseria Gonorrhoeae to Streptomycin in vitro

Franco Mortara, M. D., M. P. H., and Margaret T. Saito, A. B.

According to Waksman (*1*), Neisseria gonorrhoeae was found by Heilman (*2*) to be inhibited in vitro by a concentration of 5.0 micrograms of streptomycin per milliliter of suitable medium. The composition of the medium and the other technical details are not given. More recently, Miller and Bohnhoff (*3*) determined the initial susceptibility of 6 strains of gonococcus to streptomycin in vitro. The medium used was 10 percent rabbit blood agar, the base consisting of tryptic digest of casein, cystine, dextrose, and various salts. Most of the strains used had been freshly isolated. The streptomycin tolerance of these strains, that is "the highest concentration on which any colonies developed in 48 hours," varied from 8 to 40 units per milliliter. These results led the authors to state that all the strains tested could be classified as susceptible to streptomycin.

In the present investigation, 8 newly isolated strains of N. gonorrhoeae were tested for sensitivity to streptomycin in vitro by the agar dilution streak method. One strain each of Streptococcus haemolyticus, Staphylococcus aureus, Klebsiella pneumoniae, and Hemophilus ducreyi were simultaneously tested for purposes of comparison. Of these, the latter 2 are known to be very sensitive to streptomycin while the strains of Str. haemolyticus and S. aureus used were previously found to be considerably less affected (*4, 5, 6*). In the selection of a medium for the tests, the effect of glucose in appreciably reducing the activity of streptomycin was considered. It has been stated, in fact, that 2 mg. of glucose in 10 ml. of medium would reduce the potency of streptomycin by one-half (*4*). Two parallel series of tests were therefore performed in one of which glucose and salt were omitted from the medium.

MATERIALS AND METHODS

All the strains of N. gonorrhoeae used were freshly isolated[1] and identified by the oxidase reaction, staining, and cultural characteristics. The other organisms tested were Str. haemolyticus C–203, S. aureus C–2083, K. pneumoniae Type A, and H. ducreyi BF.

The medium employed was "Bacto" proteose peptone No. 3 agar, enriched with 20 percent citrated horse blood which was partially laked by the addition of one-third volume of sterile distilled water. The blood was added to the agar just before pouring the plates. This medium contains 0.05 percent glucose, 0.5 percent sodium chloride, and 0.5 percent disodium phosphate. A parallel series was run on a medium which differed from the previous one in that glucose, sodium chloride, and disodium phosphate were omitted. Adequate growth was obtained with both media but was more luxurious when glucose and salt were present.

Streptomycin hydrochloride[2] was dissolved in distilled water, sterilized by Seitz filtration, diluted as desired, and incorporated into the agar.

The plates were streaked with a bent glass rod from 24- to 48-hour cultures and incubated at 35° C. in a sealed jar. A suitable carbon dioxide atmosphere was obtained by placing a burning candle inside the jar. Plates were examined at 24 and 48 hours.

RESULTS

The results of the tests, which included a total of 26 determinations for the 8

From the Department of Preventive Medicine, College of Medicine, New York University, New York, N. Y.

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[1] Courtesy of Miss L. Robbins, bacteriologist at Bellevue Hospital, New York, N. Y.

[2] Streptomycin hydrochloride was kindly supplied by Dr. J. M. Carlisle of Merck and Co., Rahway, N. J.

Sensitivity of N. gonorrhoeae and other organisms to streptomycin hydrochloride in vitro

Organism	Proteose peptone No. 3 blood agar (original formula)						Proteose peptone No. 3 blood agar (sugar and salt free)					
	Units of streptomycin/cc. of medium					Control	Units of streptomycin/cc. of medium					Control
	20	15	10	5	1		20	15	10	5	1	
N. gonorrhoeae												
Strain 1	−	−	−	+++	++++	++++	−	−	−	+	+++	+++
Strain 2	−	−	−	++++	++++	++++	−	−	−	−	+++	++++
Strain 3	−	−	−	+++	++++	++++	−	−	−	−	++++	++++
Strain 4	−	−	−	++++	++++	++++	−	−	−	−	−	+++
Strain 5	−	−	++*	++++	++++	++++	−	−	−	+	++++	++++
Strain 6	−	−	+	++++	++++	++++	−	−	−	+	++++	++++
Strain 7	−	−	−	+	++++	++++	−	−	−	+	++++	++++
Strain 8	−	−	−	++	++++	++++	−	−	−	−	++++	++++
K. pneumoniae												
Type A	−	−	−	−	+++	++++	−	−	−	−	++	++++
H. ducreyi												
BF	−	−	−	−	++++	++++	−	−	−	−	−	++++
S. aureus												
C-2083	+	+	+	++	++++	++++	−	−	−	+	+++	++++
Str. haemolyticus												
C-203	++++	++++	++++	++++	++++	++++	+++	+++	++++	++++	++++	++++

− No visible growth.
+ to ++++ Relative amount of growth.
*One out of two tests was negative.

strains in the 2 series, are summarized in the table. When the original proteose peptone No. 3 medium was used, the strains of N. gonorrhoeae under investigation were totally inhibited by 10 units of streptomycin per cubic centimeter of medium in 13 of the 16 tests performed and in all instances by 15 units. A concentration of 5 units per milliliter was only slightly effective in limiting the amount of growth of 3 strains.

In the sugar-and-salt-free medium, streptomycin exerted a somewhat higher degree of activity. In this series, complete inhibition was obtained with a concentration of 5 units per milliliter of medium in 6 out of 10 tests and occasionally with 1 unit.

K. pneumoniae was completely inhibited by 5 units of streptomycin per milliliter and H. ducreyi by 1 to 5 units. These results seem to indicate that streptomycin is more active in proteose peptone No. 3 blood agar than in blood nutrient agar. In fact, in previous tests in which the latter medium was used (*6*), the lowest concentrations of streptomycin resulting in total inhibition were, respectively, for the same strains as presently used, 20 units for K pneumoniae and 15 for H. ducreyi. Results obtained with S. aureus and Str. haemolyticus corroborate those previously obtained.

SUMMARY AND CONCLUSIONS

Eight freshly isolated strains of N. gonorrhoeae were found to be sensitive to streptomycin hydrochloride in vitro and completely inhibited by 10 to 15 units per milliliter of medium. The same results were obtained with 5 to 10 units when sugar and salts were withheld from the medium. No appreciable difference in sensitivity was observed among strains.

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Treatment of Gonorrhea With Penicillin

Results of Therapy With Penicillin in Water-in-Oil Emulsion as Compared With Those Obtained by Single or Multiple Injections of Aqueous Penicillin Solutions

Alfred Cohn, M. D., Borris A. Kornblith, M. D., Isaak Grunstein, M. D., Jules Freund, M. D., and K. Jefferson Thomson, M. D.[1]

The value of penicillin in the treatment of gonococcic infections was established promptly after the clinical introduction of penicillin in 1940 (*1*). Since that time many efforts have been made to simplify the administration of this drug (*2*). Previous reports from this research unit (*3*) and elsewhere (*1, 2, 4*) have demonstrated the efficacy of aqueous penicillin solutions in gonococcic infections when administered intramuscularly in divided doses of varying size at frequent

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From the Venereal Disease Research Unit, Department of Health, City of New York, and the Public Health Research Institute of the City of New York, Inc.

[1] Surgeon (R), U. S. Public Health Service.

PENICILLIN WATER-IN-OIL EMULSION

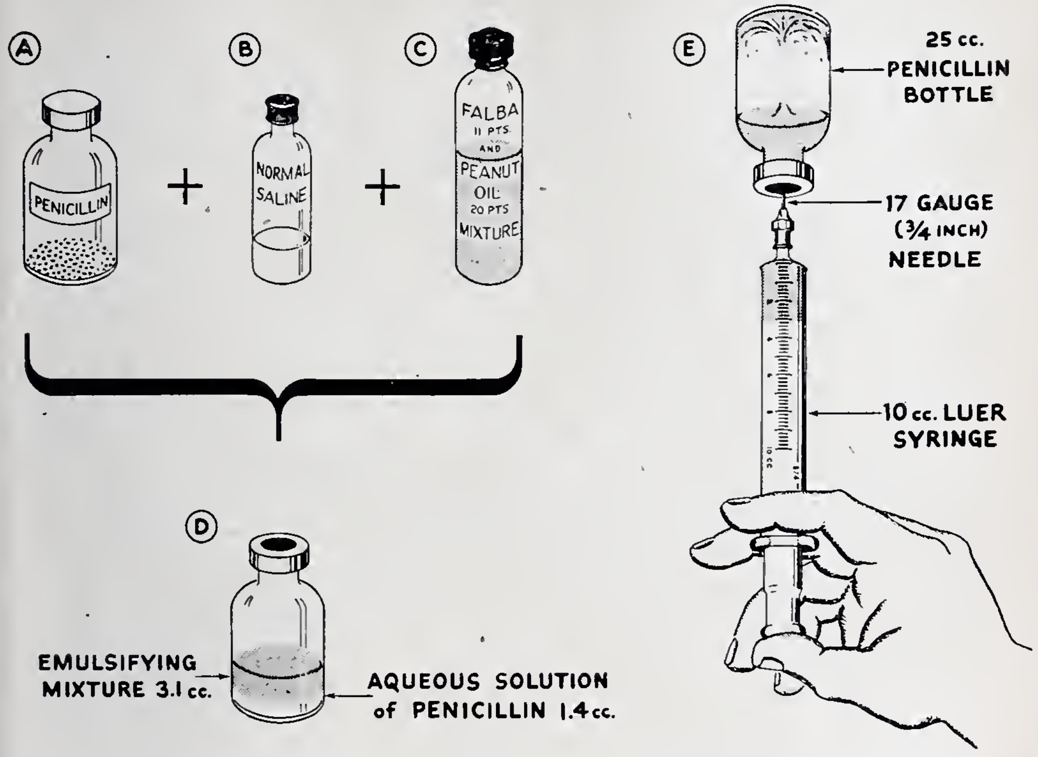

A
PENICILLIN
+
B
NORMAL SALINE
+
C
FALBA 11 PTS. AND PEANUT OIL 20 PTS MIXTURE
D
EMULSIFYING MIXTURE 3.1 cc.
AQUEOUS SOLUTION of PENICILLIN 1.4 cc.
E
25 cc. PENICILLIN BOTTLE
17 GAUGE (¾ INCH) NEEDLE
10 cc. LUER SYRINGE

FIG. 1

intervals. A preliminary report on the effect of a single intramuscular injection of penicillin incorporated in a water-in-oil emulsion on gonococcic infections has already been presented (*5*). The present report adds the experience with various treatment schedules in this clinic.

Water-in-oil emulsions of penicillin may be prepared as follows (*6*): 100,000 O. u. to 200,000 O. u. of penicillin are dissolved in 1.4 cc. of sterile 0.85 percent saline, in the rubber stoppered vial in which it is packaged commercially. To this is added, by means of a 5 or 10 cc. Luer syringe and 17-gage (¾-inch) needle, 3.1 cc. of an autoclaved mixture of peanut oil (20 parts) and "Falba" (11 parts). Emulsification is readily accomplished by repeated withdrawals and ejections of the penicillin-oil-Falba mixture from the syringe into the vial containing the original penicillin. During this procedure the mixture becomes more viscid and emulsification is satisfactory when a homogeneous, creamy consistency has been reached. A minimum of 10 or 12 mixings with the syringe is necessary to accomplish the result. This procedure is graphically shown in figure 1. Microscopic examination of an emulsion prepared in this way will show minute droplets of penicillin solution surrounded by a menstruum of Falba and peanut oil (figure 2). This technic, which can be readily carried out at the bedside, in the office, or in the clinic, is satisfactory for preparing volumes of emulsion not exceeding 10 cc. If larger quantities are desired other methods of preparation will be found more suitable (*5*). Under some circumstances it may be desirable to use penicillin solutions containing a higher concentration of the drug. Emulsification, by the above technic, is satisfactory with solutions containing as much as 300,000 units of sodium penicillin per cubic centimeter in the aqueous phase.

The results of penicillin therapy in 557 patients with gonococcic infections using various treatment schedules are summarized in the table. There were 356 ambulatory male patients, 93 ambulatory female patients, and 108 hospitalized female patients. The diagnosis of gonococcic infection was made by gonococcus positive urethral or prostatic cultures in the male and gonococcus positive urethral or cervical cultures in the female patients. Most of the patients were previously treated unsuccessfully with sulfathiazole in doses of at least 40 gm. and were presumably sulfonamide resistant.

The criteria for cure were: in the male patients, at least 3 negative gonococcus cultures of both urethral and prostatic secretions for a minimal period of 21 days; in the female, at least 3 negative gonococcus cultures of the urethral and cervical secretions for a period of 21 days.

The table shows the following:

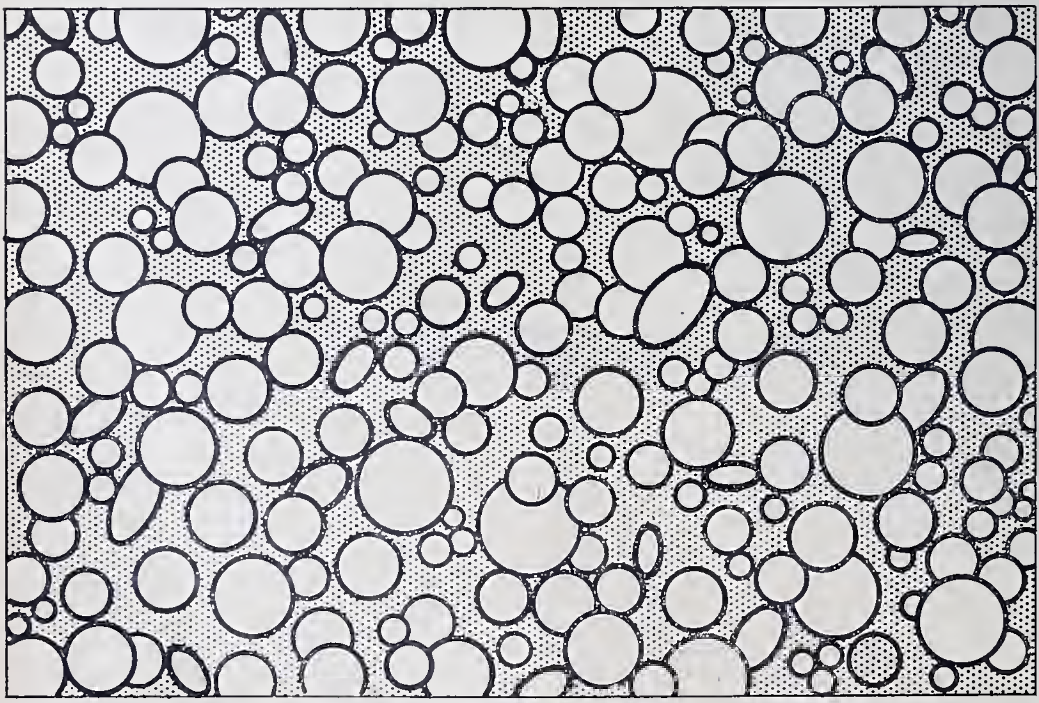
A. Single injections of 150,000 units of penicillin in water-in-oil emulsion cured 101 of 105 consecutive patients (group XV). Simultaneous injections of 100,000 units in a water-in-oil emulsion and 50,000 units in aqueous solution (drawn into the same syringe and injected together) cured all of 49 patients (group XVIII).

B. Single injections of 150,000 units of penicillin in aqueous solution cured 13 of 15 (group IV) and single injections of 300,000 units in aqueous solution cured 7 of 8 patients (group V).

C. Three injections each of 33,000 units in aqueous solution given during a period of from 3 to 4 hours cured 218 of 224 cases (groups X and XI). Two injections of 50,000 units (a total of 100,000 units) during a period of 3 hours cured 28 of 29 cases (group VII).

These observations indicate that one single injection of 150,000 units in a water-in-oil emulsion yields a cure rate of 96.2 percent, and that one combined injection of 100,000 units in water-in-oil emulsion

Fig. 2. Schematic drawing of a water-in-oil emulsion of aqueous penicillin solution in peanut oil. The penicillin is contained in the water droplets.



Penicillin therapy of gonococcic infection

Groups	Number of injections	Amount of penicillin (Oxford units) each injection	Duration of treatment in hours	Total dosage of penicillin (Oxford units)	Penicillin (Oxford units) in aqueous solution	Penicillin (Oxford units) in water-in-oil emulsion	Males			Females			Total		
							Total	Cured	Failed	Total	Cured	Failed	Grand total	Cured	Failed
I	1	25,000		25,000	25,000	0				4	2	2	4	2	2
II	1	50,000		50,000	50,000	0				2	1	1	2	1	1
III	1	75,000		75,000	75,000	0				2	1	1	2	1	1
IV	1	150,000		150,000	150,000	0	15	13	2				15	13	2
V	1	300,000		300,000	300,000	0	8	7	1				8	7	1
VI	2	(1) 25,000 (2) 25,000	3	50,000	50,000	0				15	12	3	15	12	3
VII	2	(1) 50,000 (2) 50,000	3	100,000	100,000	0				29	28	1	29	28	1
VIII	3	(1) 25,000 (2) 25,000 (3) 25,000	6	75,000	75,000	0				21	20	1	21	20	1
IX	3	(1) 50,000 (2) 25,000 (3) 25,000	6	100,000	100,000	0	11	11	0	10	10	0	21	21	0
X	3	(1) 33,333 (2) 33,333 (3) 33,333	4	100,000	100,000	0	111	109	2	51	49	2	162	158	4
XI	3	(1) 33,333 (2) 33,333 (3) 33,333	3	100,000	100,000	0	62	60	2				62	60	2
XII	3	(1) 66,666 (2) 66,666 (3) 66,666	3	200,000	200,000	0	9	8	1				9	8	1
XIII	4	25,000	9	100,000	100,000	0				11	11	0	11	11	0
XIV	5	20,000	12	100,000	100,000	0				12	12	0	12	12	0
XV	1	150,000		150,000	0	150.000	77	74	3	28	27	1	105	101	4
XVI	1	100,000		100,000	50,000	50,000	7	6	1	2	2	0	9	8	1
XVII	1	125,000		125,000	50,000	75,000	10	9	1	3	3	0	13	12	1
XVIII	1	150,000		150,000	50,000	100,000	38	38	0	11	11	0	49	49	0
XIX	1	200,000		200,000	50,000	150,000	8	8	0				8	8	0
Total							356	343	13	201	189	12	557	532	25

and 50,000 units in aqueous solution yields a cure rate of 100 percent. Similar cure rates (96.5 percent to 100 percent) were obtained with multiple injections of 100,000 units of penicillin in aqueous solution in divided doses given during a period of 3 or more hours (groups IX, X, and XI), but not when the aqueous solution of penicillin was given in one single injection (groups I to V). There were only 15 patients who received 150,000 and 8 who were given 300,000 units of penicillin in a single injection of aqueous solution; of these, 13 and 7, respectively, were cured (groups IV and V). The numbers treated in the latter groups are insufficient to calculate a cure rate. However, the number of failures encountered precluded the practical applicability of this treatment schedule.

The observation that 2 of 4 patients receiving a single injection of 25,000 units of aqueous solution of penicillin were cured, but that 1 of 8 patients receiving 300,000 units in similar form was not cured, shows that the amount of penicillin injected is not the only factor which determines the therapeutic result. The elimination or inactivation of penicillin, the sensitivity of the particular strain of the gonococcus, and other considerations such as the host factor may be of importance.

Patients not cured by the first treatment with penicillin were cured by subsequent injections of the drug. No penicillin resistant gonococcic infections were encountered.

Our conclusions regarding the therapeutic effectiveness of the water-in-oil emulsion as compared with the injection of aqueous solutions of penicillin are supported by the results of observations on the serum levels and duration of urinary excretion of penicillin in patients (5).

Immediate reactions to the intramuscular injection of the water-in-oil emulsions are similar to those found when aqueous solutions are injected. They consisted chiefly of transient pain at the site of injection radiating down the thigh, sometimes associated with a sensation of "stiffness" of the leg. Such discomfort subsided after 3 to 5 minutes. The site of injection was examined during the follow-up period of 3 weeks and no local infiltration or other abnormalities were found. Approximately 40 patients, in addition to those discussed in the present paper, were given repeated injections of penicillin in water-in-oil emulsions over a period of 5 days. These patients had no local infiltration or other untoward reactions.

An additional group of 10 consecutive male patients with gonococcic infections was treated by a single injection of 150,000 O. u. of penicillin in water-in-oil emulsion in a total volume of 1.5 cc. All 10 patients were cured.

SUMMARY AND CONCLUSIONS

1. This study was directed toward finding a practical treatment schedule for ambulatory patients with gonococcic infections.

2. Single injections of 150,000 or 300,000 units of sodium penicillin in aqueous solution resulted in an unsatisfactory cure rate.

3. Three injections of 33,000 units in aqueous solution (a total of 100,000 units) over a period of 3 or more hours cured 218 (97.3 percent) of 224 cases.

4. A single intramuscular injection of 150,000 O. u of sodium penicillin in water-in-oil emulsion cured 101 of 105 patients with gonococcic infections.

5. A simultaneous injection of 100,000 units of sodium penicillin in water-in-oil emulsion and 50,000 units in aqueous solution cured all of 49 patients with gonorrhea.

6. No untoward local or systemic reactions were observed following the intramuscular injection of water-in-oil emulsion of penicillin.

7. Patients whose infection failed to respond to a first course of penicillin therapy were subsequently cured by a second identical course of therapy or by using larger amounts of penicillin than administered initially.

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An Unusual Strain of Neisseria Isolated from the Cervix Uteri

Marion B. Coleman

Species of Neisseria other than Neisseria gonorrhoeae are occasionally found in the genitourinary tract (*1, 2, 3, 4*). Recently, a strain of micrococcus was isolated from specimens of discharge from the cervix uteri of a 20-year-old patient, differing from the gonococcus only in its failure to produce acid in medium that contained glucose. This finding is of interest because criteria for identification of gonococci do not always include the fermentative properties (*5, 6, 7, 8, 9*).

Micrococci that had the properties of gonococci, including fermentation of glucose but not maltose, sucrose, or lactose, were isolated from specimens of discharge from the cervix uteri collected on February 6, February 20, April 5, and August 2, 1945. Penicillin (200,000 units) was administered on August 10 and 11. In a culture taken from the cervix uteri on August 21, there were many convex, mucoid, transparent colonies with undulate margins typical of the gonococcus and reacting to the oxidase test. Subcultures grew well but produced no acid in ascitic fluid semisolid or in starch-gelatin agar

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From the Division of Laboratories and Research, New York State Department of Health, Albany, N. Y.

containing glucose (*10*). Sparse but definite growth, becoming more delicate after several generations, was obtained on beef-extract agar at room temperature. The micro-organism has been subcultured at 48-hour intervals in glucose ascitic fluid semisolid and at 8- to 16-hour intervals on coagulated-blood agar (*11*) for several weeks, with no change in its colonial or fermentative properties. No agglutination was obtained in antimeningococcus or antigonococcus serums that gave definite reactions with representative strains of the homologous Neisseria. No micro-organisms with the properties of Neisseria were found in slide preparations or cultures collected from the cervix uteri and urethra on September 11, September 20, and October 4.

This micro-organism is considered to be an aberrant strain of either Neisseria catarrhalis or N. gonorrhoeae. If the latter, the fermentative properties may have been affected by penicillin; Bahn, Ackerman, and Carpenter (*12*) report that fermentation of glucose was delayed in cultures that had become increasingly penicillin resistant in vitro. If it is a strain of N. catarrhalis, its colonial and cultural properties differ markedly from those considered characteristic for the species. In any case, this observation emphasizes the need for determining the fermentative properties of all species of Neisseria regardless of their source and other characters.

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CURRENT LITERATURE

Note: Abstracts of any article listed below are available on request. In addition, abstracts of all articles concerned with venereal diseases or related subjects which have been published in the better known journals both here and abroad during the past 20 years are in the files. These are open to workers in the field. An asterisk (*) before a title indicates that the article is abstracted below.

AM. J. CHEM. SOC., EASTON

A note on the effect of chlorine chloride on the Kahn flocculation reaction. Elliott Volkin, John O. Erickson, H. W. Craig and Hans Neurath. 67: 2210–2212, Dec. 1945.

AM. J. CLIN. PATH., BALTIMORE

*A modified Gram's stain for use in staining large numbers of smears. Barbara M. White and Clyde G. Culbertson. 15: 53, May 1945.

Laboratory purification of penicillin by the Berger method. Gordon Denton. 15: 339–341, Aug. 1945.

New method for preparing Boerner–Jones–Lukens (B–J–L) flocculation antigen. Fred Boerner and Marguerite Lukens. 15: 71–72 (Tech. Sec.), Sept. 1945.

Disseminated granuloma venereum. Emil Palik and John R. Schenken. 15: 419–430, Oct. 1945.

Kolmer-like antigen prepared from lamb muscle. William S. Jackway. 15: 97–98 (Tech. Sec.), Nov. 1945.

A quantitative macro flocculation test for the serodiagnosis of syphilis. Fred Boerner and Marguerite Lukens. 16: 1–3. Jan. 1946.

A quantitative fixation of complement test for the diagnosis of syphilis, leptospirosis, echinococcus disease, malaria, bacterial and other diseases. Fred Boerner and Marguerite Lukens. 16: 4–12, Jan. 1946.

A method for grouping and classifying serologic reactions for syphilis based on flocculation and fixation complement units, Fred Boerner. 16: 13–14, Jan. 1946.

Steiner's silver stain for spirochetes in tissue sections. A technician's experience. Rubye A. J. Wilson. 16: 21–24, Jan. 1946.

A modified Gram's stain for use in staining large numbers of smears.—The method described, a simple and successful modification of Gram's method of staining, is reported as giving unusually striking differentiation of Gram-positive and -negative organisms in the detection of the gonococcus during examination of slides. One difference reported is the use of potassium mercuric iodide as a mordant. False findings are eliminated because of over- and under-decolorization. The procedure is described in detail.

AM. J. DIGEST. DIS., COLUMBUS

Luetic rectal stricture. A. Melamed and S. M. Feld. 12: 203–206, June 1945.

AM. J. DIS. CHILD., CHICAGO

*Causes of prematurity. V. Influence of syphilis on the incidence of prematurity. Estelle W. Brown, Robert A. Lyon and Nina A. Anderson. 70: 318–324, Nov.–Dec. 1945.

Causes of prematurity. V. Influence of syphilis on the incidence of prematurity.—In an analysis of 13,329 obstetric patients to determine the importance of maternal syphilis as a cause of premature delivery, the authors report the following results:

Prematurity was more frequent among syphilitic women than among nonsyphilitic women. For the white race the respective percentages were 14 and 9 and for the Negro race, when infants weighing less than 5 lbs. 3 oz. were included, the rate of prematurity was 13 and 9 percent. Prematurity in white women having no detectable illness during pregnancy was 5 percent, while in those having syphilis as their only abnormality it was 10 percent, comparable rates among Negroes being 6 and 10 percent.

Considering the live-born infants alone, the prematurity rate in the white group was slightly elevated by the occurrence of maternal syphilis, and in the Negro race the difference was of statistical significance. Maternal syphilis did not alter the incidence of prematurity among stillborn infants. Differences were also noted in a comparison between mothers having normal pregnancies and those having syphilis.

The rate of prematurity among syphilitic patients was reduced by specific therapy. When diseases or abnormal conditions other than uterine bleeding were associated with syphilis during pregnancy the prematurity rates were slightly higher than those of groups in which syphilis occurred alone. A pronounced increase in the incidence of premature delivery was noted among those women having both syphilis and conditions producing uterine bleeding.

AM. J. M. SC., PHILADELPHIA

Penicillin—its present status in the treatment of infections. The Nathan Hatfield Lecture XXIX. Chester S. Keefer. 210: 147–158, Aug. 1945.

Osteomyelitis caused by granuloma inguinale. Report of a case with cultivation of the Donovan body in the yolk sac of the developing chick embryo. Walter H. Sheldon, Ben R. Thebaut, Albert Heyman and Margaret J. Wall. 210: 237–245, Aug. 1945.

Biologic false positive reactions to the tests for syphilis. Herman Beerman. Part I. 209: 525–542, Apr. 1945. Part II. 210: 524–548, Oct. 1945.

The use of penicillinase in cultures of body fluids obtained from patients under treatment with penicillin. Harry F. Dowling and Harold L. Hirsh. 210: 756–762, Dec. 1945.

AM. J. OPHTH., MENASHA

Syphilitic optic atrophy and tryparsamide amblyopia. New York Society for Clinical Ophthalmology, Society Proceedings. H. Housten Merritt. 29: 92–93, Jan. 1946.

AM. J. SYPH., GONOR. & VEN. DIS., ST. LOUIS

* Venereal disease in the Army Air Forces in the continental United States, 1942–44. Robert Dyar and Julius R. Scholtz. 30: 99–109, Mar. 1946.

Seroresistance (Wassermann-fastness) in syphilis: A discussion for the patient. Joseph Earle Moore. 30: 125–133, Mar. 1946.

* Blood and urine arsenic levels of patients with early syphilis under intensive arsenotherapy. A. Benson Cannon, Jerome K. Fisher, Juan J. Rodriguez, Guila F. Beattie and Eugenia H. Maechling. 30: 144–164. Mar. 1946.

Venereal disease in the Army Air Forces in the continental United States, 1942–1944.—The details of operation and the policy of the Army Air Forces venereal disease program are given. Special problems considered in the organization of this program were the effects of infection and treatment upon personnel engaged in flying training and highly specialized duties, the type of personnel concerned, and the wide distribution of many small bases. Tables are presented showing incidence rates according to race and disease, incidence rates for flying personnel only, and days lost from duty per case and per 1,000 strength per annum for white and Negro troops. The validity of the statistics used is discussed.

The authors summarize their findings as follows: the total venereal disease rate declined from 29.6 per 1,000 per annum in 1942 to 22.3 in 1943, but rose again to 27.9 in 1944. The rate for white troops, which is approximately one-seventh that for Negro troops, increased 29 percent from 1943 to 1944, the Negro rate increasing 9 percent in the same interval. From 1942 to 1944, the time lost from duty per case of venereal disease dropped from 15 to 4 days as a result of better medical administration, improved treatment methods, and the introduction of penicillin. The days lost from duty per 1,000 men per annum declined from 361 in 1942 to 112 in 1944 (approximately 70 percent). At the end of 1944, less than 1 man in every 10,000 white soldiers, and 1 in every 830 Negro soldiers with the A. A. F. were off duty on any 1 day because of venereal disease.

Blood and urine arsenic levels of patients with early syphilis under intensive arsenotherapy.—An analytical study of the amount of arsenic in the blood and urine of 269 patients having early syphilis was made to ascertain the amount of arsenic eliminated during the treatment period, to determine what dosage of arsphenamine gave the most uniform arsenic level in the blood and to point out the factors which most greatly affected that level. The patients received fractional doses of arsphenamine intravenously 3 to 4 times daily for 5 to 6 days.

The authors summarize their findings as follows: The blood arsenic levels of these patients fluctuate widely from day to day, and reach varying high degrees of saturation. Arsenic is present in the blood stream in many instances long after cessation of treatment. The urinary excretion of arsenic is quite protracted and diminishes irregularly, increased amounts of arsenic sometimes being found in the urine long after treatment has been stopped, thus indicating retention and release of arsenic by the body. The blood arsenic levels and the urinary arsenic concentrations of the patients are characterized by considerable individual differences, depending on the degree to which the patients vary with regard to urinary output, gastro-intestinal function, general health, and physical habitus. The dosage of arsphenamine given is of varying influence in the retention of arsenic, although, in general, larger doses seem to result in higher retention. The weight and age of the patient play a role in his ability to dispose of the injected arsphenamine or its metabolites, retention taking place more readily, although irregularly, in older, heavier patients than in young, lightweight ones. Certain inconsistencies are presented, however, in the case of young, heavy patients, or old, lightweight ones whose blood arsenic levels show no uniformity. Toxic reactions such as erythema and encephalitis are associated with variably high blood arsenic levels.

ANN. INT. MED., LANCASTER

A syndrome termed Reiter's disease (urethritis, conjunctivitis and arthritis). C. Dudley Miller and Donald W. McIntyre. 23 : 673–682, Oct. 1945.

ARCH. BIOCHEM., NEW YORK

On a synthetic medium for the production of penicillin. A. G. C. White, L. O. Krampitz and C. H. Werkman. 8 : 303–309, Nov. 1945.

Cocarboxylase as a growth factor for certain strains of Neisseria gonorrhoeae. Charles E. Lankford and Priscilla K. Skaggs. 9 ; 265–283, Mar. 1946.

ARCH. INT. MED., CHICAGO

* Recurrent meningoencephalitis due to the virus of lymphogranuloma venereum. David W. Scott. 76 : 174–177, Sept. 1945.

Infectious diseases. Eleventh annual review of significant publications. Hobart A. Reimann. 76 : 178–188, Sept. 1945.

Recurrent meningoencephalitis due to the virus of lymphogranuloma venereum.—A case report of meningoencephalitis is presented showing the virus of lymphogranuloma venereum to be the probable cause.

A 21-year-old man was admitted with a history of hospital treatment for recurrent meningococcic meningitis treated with sulfonamide drugs. Physical examination revealed bilateral inguinal scars and small hard inguinal lymph nodes palpable bilaterally. There was a slight hesitancy of speech. Wassermann and blood Kahn reactions for syphilis were negative. Two spinal punctures showed a 4 plus Pandy reaction both times, and a complement fixation for lymphogranuloma venereum was reported. Isolation of the virus from the excised inguinal lymph node was unsuccessful, however. Microscopic studies of this node showed a chronic, nonspecific fibrous lymphadenitis. Treatment with sulfadiazine brought prompt symptomatic improvement. The patient was discharged and has had no recurrences.

The author makes the following evaluations of various laboratory procedures as diagnostic aids: isolation and identification of the virus is not useful for diagnosis as it is too slow and elaborate; the complement fixation test is a valuable aid; the suitability of the Frei test is questionable; the results of examination of the spinal fluid are not diagnostically specific.

Treatment with the sulfonamide drugs was reported as effective but it must be continued for some time after the patient becomes asymptomatic to prevent recurrence.

ARCH. NEUROL. & PSYCHIAT., CHICAGO

Unilateral internal ophthalmoplegia: Sole clinical sign in patient with syphilitic meningitis. Meyer A. Zeligs and Gerald F. Joseph. 54 : 389–390, Nov.–Dec. 1945.

BIOCHEM. J., LONDON

The production of penicillin using fractions obtained from aqueous extracts of pea (pisum sativum). R. P. Cook, W. J. Tulloch, Margaret B. Brown and J. Brodie. 39 : 314–317, No. 4, 1945.

BOL. OFIC. SAN. PANAM., WASHINGTON

Public health in Ecuador. Carlos Andrade Marín. 24 : 481, 1945.

BRIT. J. VEN. DIS., LONDON

*Penicillin therapy of early syphilis. Follow-up examination of 792 patients 6 or more months after treatment. Donald M. Pillsbury. 21 : 139–150 ; Dec. 1945.

*The treatment of gonorrhoea with penicillin. J. Marshall. 21 : 150–162. Dec. 1945.

Gumma of the thyroid gland. Sydney M. Laird. 21 : 162–166, Dec. 1945.

Intensive arsenotherapy of early syphilis. T. R. Lloyd Jones and F. Gordon Maitland. 21 : 166–173, Dec. 1945.

Oral administration of bistovol in general paralysis. Annotations. R. Pakenham-Walsh. 21 : 174–176, Dec. 1945.

Penicillin therapy of early syphilis. Follow-up examination of 792 patients 6 or more months after treatment.—The author outlines the U. S. Army's use of penicillin in early syphilis in the European Theater of Operations and analyzes results in 792 early syphilis patients who were followed up 6 or more months after treatment.

At 2 and 4 months, quantitative Kahn tests of each patient treated with penicillin were required; at 6 months, a complete spinal fluid examination, Kahn test, and physical examination were made; and further Kahn tests were made at 9 and 12 months.

The author's experience indicates that penicillin has a more regular and rapid effect on early syphilis lesions than any arsphenamine compound. Only 1 reaction to penicillin was reported in this series; Herxheimer reactions occurred in 25 to 50 percent of cases. The serologic relapse rate in seronegative primary syphilis cases was reported as 1.82 percent for patients seen over a period of 6 to 8 months after treatment. Results of blood Kahn tests 6 or more months after penicillin treatment were as follows: of 274 seronegative primary syphilis cases, 98.18 percent remained seronegative; among seropositive primary syphilis cases, 87.82 percent became seronegative; of the 111 secondary syphilis patients, 72.07 percent were seronegative. Penicillin is reported as comparing unfavorably with arsenobismuth therapy in its achievement and maintenance of seronegativity. Results of spinal fluid examinations of 642 patients, 6 months or more after completion of treatment, revealed only 3 patients with minor changes in fluid.

Tables are presented showing incidence of relapse; types of lesions; results of serologic tests at various intervals; and a comparison between penicillin, prolonged arsenical and heavy metal, and 20–day intensive arsenobismuth methods of therapy.

The author concludes that (1) penicillin therapy in early syphilis exhibits few toxic effects; (2) the patient is promptly rendered noninfectious; (3) the number of infectious relapses after penicillin therapy is small, occurring in this study usually within 20 weeks; (4) prompt diagnosis of syphilis determines the effectiveness of a single course of penicillin treatment; (5) spinal fluid examination showed the incidence of progression to neurosyphilis to be extremely low, especially as compared with arsphenamine and heavy metal therapy; (6) penicillin appears to be the best single agent against syphilis, but the establishment of out–patient clinic schedules would be of great value in widespread civilian use.

A circular letter from the Chief Surgeon, European Theater of Operations, U. S. Army, on the treatment of syphilis with regard to penicillin is reprinted in an appendix. A discussion of the paper is presented.

The treatment of gonorrhoea with penicillin.—The author reports on the treatment of 262 acute gonorrhea patients with a total of 100,000 units of penicillin in 20,000 unit doses every 3 hours.

The patients were hospitalized until clinical evidence of gonorrhea disappeared and were then followed over a period of 6 months. The test of cure included examination of the prostate and vesicles and their secretions. In 96 percent of the cases in this series, the discharge became and remained free of gonococci by the end of 24 hours. Twelve percent of the cases required adjuvant treatment for an apparently nongonococcic urethritis.

Approximately half the relapses occurred more than 2 weeks after treatment. Other dosage methods tried included 100,000 units given by single and double injections. Although gonococci disappeared from the urethral discharge within 4 hours, relapses were frequent; 18 of the 70 cases in this series relapsed.

In the treatment of cases of penicillin failure, the author recommends an increased dosage schedule. In nongonococcic urethral discharges persisting after penicillin therapy, the author states that irrigations and sulfonamides are indicated, but that retreatment with penicillin is seldom successful. In complicated cases, foci of infection should be found and drained before penicillin therapy is begun.

The results of the use of 100,000 units of penicillin in treating nongonococcic urethritis are reported as unsuccessful. Only 1 case seen by the author had an untoward reaction to penicillin therapy and only 1 case proved penicillin resistant at all dosage levels.

With the present dosages of penicillin, the author does not think the problem of penicillin masking syphilis a great one, because in his experience the only effect has been a moderate prolongation of the incubation period.

The results in the treatment of complications of gonorrhea are discussed briefly.

CALIFORNIA'S HEALTH, SACRAMENTO

VD manual for teachers. 3: 111, Mar. 31, 1946.

CANAD. M. A. J., MONTREAL

Management of early syphilis. Important points. V. D. Briefs. 53: 63, July 1945.

Urethritis in the male. V. D. Briefs. 53: 63, July 1945.

EAST AFRICAN M. J., NAIROBI

Penicillin and venereal disease (in East Africa). Correspondence. James H. Sequeira. 22: 281, Aug. 1945.

Penicillin in the treatment of gonorrhoea. J. C. J. Callanan. 22: 302–305, Sept. 1945.

Primary optic atrophy in a tabetic African. Howard Reed. 22: 316–320, Oct. 1945.

ILLINOIS HEALTH MESSENGER, SPRINGFIELD

Do you . . .? (Premarital blood tests). 18: 18, Mar. 1, 1946.

ILLINOIS M. J., CHICAGO

Cultures as an aid in the diagnosis of gonorrhea. State Department of Public Health. 89: 57–59, Feb. 1946.

INDUST. MED., CHICAGO

Venereal disease. What stake has industry in its control? 15: 224–225, 226, Mar. 1946.

J. BACT., BALTIMORE

Growth requirements and metabolism of Neisseria intracellularis. N. Grossowicz. 50: 109–115, July 1945.

The identification of Neisseria gonorrhoeae by means of bacterial variation and the detection of small colony forms in clinical material. Harry E. Morton and Joan Shoemaker. 50: 585–587, Nov. 1945.

On the amount of carbon dioxide supplied for the primary isolation of Neisseria gonorrhoeae. Harry E. Morton. 50: 589–590, Nov. 1945.

J. BIOL. CHEM., BALTIMORE

A simplified preparation of cardiolipin, with a note on purification of lecithin for serologic use. Mary C. Pangborn. 161: 71–82, Nov. 1945.

J. IMMUNOL., BALTIMORE

* The standardization of the cardiolipin–lecithin–cholesterol antigen for the complement-fixation test for syphilis. Elizabeth Maltaner and Frank Maltaner. 51: 195–214, Oct. 1945.

p–Aminobenzoic acid synthesis by Neisseria gonorrhoeae in relation to clinical and cultural sulfonamide resistance. Maurice Landy and Ruth B. Gerstung. 51: 269–277, Oct. 1945.

- **The standardization of the cardiolipin-lecithin-cholesterol antigen for the complement-fixation test for syphilis.**—The authors report on a determination of the relationship between 3 essentially chemically pure components of cardiolipin antigen—2 phospholipids, cardiolipin and lecithin, with cholesterol—that will give the maximal reactions under the conditions of the test for the standardization of cardiolipin antigen for the complement fixation test. The methods and materials are described.

The authors state that strongly reacting serums tested with cardiolipin alone demonstrated some inhibition of complement; this, however, was of relatively slight degree in relation to the total reactivity of the serum when tested with a suitably adjusted mixture of cardiolipin, lecithin, and cholesterol. Cardiolipin did not inhibit the hemolytic activity of complement in the presence of normal or nonreacting serum or of suitable amounts of lecithin. Lecithin alone was reported as not anticomplementary nor did it inhibit complement in the presence of nonreacting or reacting serum.

Lecithin and cardiolipin are reported as highly active antigens when mixed in suitable proportions (5 parts lecithin to 1 cardiolipin) and dispersed by methods commonly used with noncholesterolized antigen.

The addition of cholesterol to cardiolipin and lecithin resulted in a definite sensitization as under these conditions reactions of similar degree were detected by much smaller quantities of cardiolipin and lecithin.

No alteration in the ratio of cholesterol affording maximal reaction is reported when the amount of lecithin used exceeded the ratio of 5:1, but when the amount of lecithin was smaller the ratio cholesterol: lecithin required for maximal reactivity increased along with a gradual increase in anticomplementary reaction, and the degree exceeded that shown by like quantities of cardiolipin without cholesterol.

A conservative adjustment for practical use is reported as a ratio of lecithin: cardiolipin of 5: 1, and for the upper limits of sensitization a ratio of lecithin: cardiolipin of about 1.5:1, and of cholesterol: lecithin of 5:1 or 6:1.

J. Indiana M. A., Indianapolis

Massive arsenotherapy of early syphilis. H. H. Rodin. 39: 104–107, Mar. 1946.

Penicillin and venereal disease. Minor Miller. 39: 129, Mar. 1946.

J. Invest. Dermat., Baltimore

Early syphilis resistant to treatment with penicillin. Report of a case. William G. Tyson. 6: 279–280, Oct. 1945.

J. Nat. M. A., New York

Gastric syphilis. J. Edward Perry. 38: 56–60, Mar. 1946.

J. Path. & Bact., Edinburgh

A comparison of modifications of three serological reactions for syphilis: Wassermann, Meinicke and Sachs-Georgi tests. D. B. Colquhoun, W. B. Kyles and I. Rannie. 57: 249–256, Apr. 1945.

A simple and convenient method for the assay of penicillin. James Brodie. 57: 257–258, Apr. 1945.

J. Pharmacol. & Exper. Therap., Baltimore

Para–aminohippuric acid; its pharmacodynamic actions. Karl H. Beyer, Paul A. Mattis, Elizabeth A. Patch and Horace F. Russo. 84: 136–146, June 1945.

Toxicological manifestations and pathological findings following the administration of para–aminohippuric acid. Paul A. Mattis, Karl H. Beyer, Samuel E. McKinney and Elizabeth A. Patch. 84: 147–156, June 1945.

*Distribution and fate of penicillin in the body. Windsor C. Cutting, F. P. Ludueña, Marshall Fiese, Henry W. Elliott and John Field, II. 85: 36–41, Sept. 1945.

The spirocheticidal and trypanocidal action of acid-substituted phenyl arsenoxides as a function of pH and dissociation constants. Harry Eagle. 85: 265–282, Nov. 1945.

Distribution and fate of penicillin in the body.—This paper deals with a study on the distribution of penicillin in the animal body after injection and the ultimate fate of that part which is not rapidly excreted.

Through comparisons of the concentration of penicillin in the blood and tissues of 6 rats and 3 rabbits, it was shown that penicillin was widely distributed in the tissues and organs, except for the nervous system. Comparisons of blood and biliary concentrations in dogs revealed that the penicillin in the bile exceeded that in the blood, while that in the saliva did not.

The rate of disappearance of penicillin from the blood was not influenced by biliary obstruction in rabbits, but its effect was greatly prolonged by renal obstruction. Penicillin was even less rapidly destroyed in urine or physiologic salt solution as compared with its slow destruction in shed blood at body temperature.

The authors state that although the major part of administered penicillin is lost in the urine and a minor portion in bile and saliva, the fate of the amount unaccounted for remains unknown.

Journal-Lancet, Minneapolis

A comparison of the response of gonorrhea to sulfathiazole and penicillin. (Analysis of 144 cases.) I. H. Mauss. 66: 65–67, Mar. 1946.

Lancet, London

Treatment of syphilis with penicillin. Royal Society of Medicine. 1: 270–272, Feb. 23, 1946.

M. J. Australia, Sydney

*Pleuropneumonia-like organisms in cases of nongonococcal urethritis in man and in normal female genitalia. W. I. B. Beveridge, A. D. Campbell and Patricia E. Lind. 1: 179–180, Feb. 9, 1946.

Canada letter. (V. D. campaign.) Special correspondence. 1: 236–237, Feb. 16, 1946.

Pleuropneumonia-like organisms in cases of nongonococcal urethritis in man and in normal female genitalia.—The literature is reviewed and the authors describe their findings in a study to demonstrate the presence of pleuropneumonia-like organisms in nonspecific urethritis cases and in patients having other infections, through complement fixation tests and cultural investigations.

Complement fixation tests against pleuropneumonia-like organisms gave positive reactions with specimens from persons having various infections, but there was no correlation with any clinical condition. These organisms were isolated in 20 percent of cases of nonspecific urethritis among men and in 17 percent of swabs from the genital tract of normal women. No pleuropneumonia-like organisms were demonstrated in normal men.

The authors make no definite conclusions, but agree that, in the majority of cases, nonspecific urethritis is the result of infection by pleuropneumonia-like organisms. However, the authors object to this hypothesis on the grounds that the organisms were not demonstrated in 80 percent of their cases, and that they were present in about 20 percent of normal women.

NAT. NEGRO HEALTH NEWS, WASHINGTON
Venereal disease conference, Durham, N. C. Venereal disease and controlling it in the State. 13 : 6, Oct.–Dec. 1945.

NATURE, LONDON
*Penicillin in the treatment of syphilis. James Marshall. 156 : 769–772, Dec. 29. 1945.

Penicillin in the treatment of syphilis.—The author reviews the literature and states that in his own experience in treating early syphilis in men with 2,400,000 units of penicillin, surface lesions healed as rapidly as in cases treated with arsenic and bismuth, and that positive reactions became negative in the same time as under arsenical therapy. In a series of 67 patients treated with 2,400,000 units of penicillin, 10 relapsed. In the treatment of early syphilis, the author recommends some method of combined therapy, and suggests a week's hospitalization for administering 2.4 million units of penicillin and the beginning of a 10-week course of injections of neoarsphenamine and bismuth.

It is stated that penicillin in late syphilis is ineffective, and a long-term treatment schedule with a suitable arsenical and bismuth is recommended. Immediate results and maintenance of improvement have been seen by the author in treating neurosyphilis patients with 4,000,000 units of penicillin followed by treatment with an arsenical and bismuth for at least 6 months.

The author concludes that his combined method of treatment for syphilis does not imply that penicillin alone cannot effect a cure, but that optimum treatment with penicillin is still to be determined.

VIRGINIA M. MONTHLY, RICHMOND
*Neurosyphilis with a 3-year observation of the comparative therapeutic effects of inoculation malaria and artificial fever therapy. Vincent Edward Lascara. 78 : 111–120, Mar. 1946.

Neurosyphilis with a 3-year observation of the comparative therapeutic effects of inoculation malaria and artificial fever therapy.—The author presents observations made over a 3-year period of the treatment of Negro neurosyphilitic patients with inoculation malaria and artificial fever. The literature is reviewed and the types of neurosyphilis, prophylaxis of neurosyphilis, the prognosis of syphilis, and tryparsamide therapy in neurosyphilis are discussed.

In treating patients having late syphilis and those with the paretic formula in the cerebrospinal fluid, the author recommends fever combined with chemotherapy plus a subsequent 12 or 18 months of chemotherapeutic treatment, as compared to chemotherapy alone. Induced fever methods in neurosyphilis employed by the author include inoculation malaria, the Kettering hypertherm, and the inductotherm. Tertian malaria is the infection of choice because clinical manifestations are less severe and more controllable with quinine. When quartan type was used by the author, 7 to 10 percent of the patients observed (Negroes) were immune.

The technic of inoculation, routine care during the course of malaria, and follow-up with chemotherapy are described in detail, as well as the method of artificial fever treatment.

One hundred and ninety paretic patients were treated with inoculation malaria and artificial fever therapy. Among 102 patients treated with artificial fever, 86 (84 percent) showed remission and improvement, as did 43 (48 percent) of 88 patients receiving therapeutic malaria. The author states that in all cases showing remission, the blood serology and paretic formula were definitely reduced, and that those cases receiving artificial fever coincident with chemotherapy showed greater complete reversal.

YALE J. BIOL. & MED., NEW HAVEN
Combined penicillin and chemotherapy in acute gonorrheal urethritis. Ralph D. Alley. 18 : 7–10, Oct. 1945.

Cases of Syphilis and Gonorrhea Reported for the First Time in States, Territories, and Possessions for the First 2 Months of 1946

Area	Syphilis										Gonorrhea	
	Total[1]		Primary and secondary		Early latent		Late and late latent		Congenital			
	Feb.	Jan.-Feb.	Feb.	Jan.-Feb.	Feb.	Jan.-Feb.	Feb.	Jan.-Feb.	Feb.	Jan.-Feb.	Feb.	Jan.-Feb.
Alabama	1,092	1,873	246	422	275	507	135	204	19	45	973	1,872
Arizona	115	313	49	130	29	81	34	86	3	16	97	235
Arkansas	690	1,726	154	397	251	646	258	608	27	73	552	1,257
California	1,886	4,199	414	984	558	1,196	812	1,798	45	120	2,183	5,229
Colorado	202	449	72	168	58	121	65	141	7	19	160	406
Connecticut	156	339	31	73	31	62	67	152	8	14	73	196
Delaware	96	147	37	57	34	48	16	23	3	4	30	50
District of Columbia	279	442	92	127	96	172	68	106	7	12	707	1,134
Florida	1,136	2,026	280	456	475	803	283	560	26	53	1,257	2.503
Georgia[4]	------	------	------	------	------	------	------	------	------	------	------	------
Idaho	65	118	17	33	8	20	25	39	1	2	25	74
Illinois	1,862	3,877	524	1,046	544	1,195	753	1,525	41	111	2,596	5,833
Indiana	452	945	106	245	60	132	148	320	15	26	277	593
Iowa	152	276	67	111	32	67	38	71	4	8	169	372
Kansas	129	273	45	94	32	72	49	101	3	6	234	468
Kentucky	485	1,201	193	526	144	312	83	202	16	41	658	1,518
Louisiana	1,546	2,704	380	725	450	801	215	376	59	96	1,232	2,182
Maine	42	(6)	24	(6)	7	(6)	9	(6)	1	(6)	74	(6)
Maryland	[5] 174	825	[5] 25	229	[5] 30	172	[5] 15	141	[5] 4	21	[5] 149	614
Massachusetts	500	1,071	216	470	------	------	264	562	20	39	431	1,018
Michigan	1,364	2,789	395	785	305	682	455	893	48	78	1,114	2,344
Minnesota	111	209	37	71	18	32	43	86	5	6	206	406
Mississippi	2,049	4,113	766	1,451	604	1,331	579	1,154	100	177	3,803	6,976
Missouri	957	1,896	241	509	359	704	320	611	30	45	623	1,467
Montana	25	54	9	19	6	13	2	6	------	------	27	66
Nebraska	87	223	34	72	30	82	20	60	1	5	129	263
Nevada	60	94	8	17	------	------	31	39	1	3	22	48
New Hampshire	20	44	5	11	2	7	10	23	3	3	46	90
New Jersey	748	1,647	138	310	272	558	319	730	18	41	391	878
New Mexico	69	174	22	37	20	53	26	80	1	4	49	207
New York	[2] 1,978	[2] 4,587	[2] 420	[2] 975	[2] 565	[2] 1,307	[2] 935	[2] 2,191	[2] 42	[2] 88	[2] 1,497	[2] 3,517
North Carolina	737	1,413	330	653	277	512	96	183	34	65	1,066	2,082
North Dakota	29	69	16	34	5	10	3	12	1	1	49	146
Ohio	1,649	3,062	509	929	549	970	542	1,072	49	91	642	1,353
Oklahoma	579	1,058	119	212	196	354	146	263	30	53	821	1,531
Oregon	80	184	25	54	17	27	32	88	2	2	180	402
Pennsylvania	1,092	1,795	236	419	374	598	352	595	80	114	[3] 395	[3] 695
Rhode Island	89	210	31	76	4	18	31	75	5	9	41	102
South Carolina	558	963	212	353	198	327	95	194	30	49	875	1,518
South Dakota	22	55	7	21	4	10	11	23	------	1	39	117
Tennessee	1,246	2,248	373	673	461	856	373	667	32	41	1,969	3,576
Texas	774	1,619	257	535	321	672	163	340	30	68	1,151	2,407
Utah	20	56	11	27	3	14	6	15	------	------	25	81
Vermont	17	34	11	14	3	3	2	14	------	2	24	64
Virginia	859	1,747	258	485	344	740	230	468	19	43	924	1,919
Washington	220	491	39	104	68	150	96	190	1	9	304	796
West Virginia	715	1,116	412	650	147	238	129	189	27	36	753	1,497
Wisconsin	229	460	53	117	47	96	103	211	4	6	166	319
Wyoming	22	44	6	14	6	15	10	14	------	------	15	33
Total United States	27,464	55,258	7,952	15,920	8,319	16,786	8,497	17,501	902	1,746	29,223	60,454
Alaska	19	30	1	3	7	7	9	13	2	3	62	128
Canal Zone	31	61	3	10	12	18	14	28	2	2	64	133
Hawaii	36	120	2	8	5	6	25	91	3	14	46	86
Puerto Rico[4]	------	------	------	------	------	------	------	------	------	------	------	------
Virgin Islands	7	16	1	1	4	10	1	4	1	1	29	53
Total United States and Possessions	27,557	55,485	7,959	15,942	8,347	16,827	8,546	17,637	910	1,766	29,424	60,854

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[1] Includes "not stated."
[2] N. Y. C. only.
[3] Philadelphia only.
[4] No report for February.
[5] Exclusive of Baltimore.
[6] No report for January.

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A Microflocculation Test for Syphilis Using Cardiolipin Antigen

Preliminary Report

Ad Harris, Serologist, A. A. Rosenberg, Associate Serologist, and L. M. Riedel, Assistant Serologist, United States Public Health Service

Since cardiolipin (*1*, *2*, *3*) and purified lecithin were found to be satisfactory antigen components in complement fixation tests for syphilis (*4*, *5*), an investigation has been conducted into the use of these substances as antigens for flocculation test procedures. During the interval of study several flocculation methods using cardiolipin antigens have been reported (*6*, *7*, *8*, *9*). The behavior of antigens varied with the testing technic employed so that an antigen formula found to be optimum for one test method was not satisfactory for another.

As the results obtained with any testing technic are a reflection not of antigen efficiency only but rather the combined effects of all phases of the method and all the reagents used, it is evident that the testing method of choice is one wherein the materials and mechanics employed will promote reproducibility of performance at a satisfactory level of reactivity. For this reason, it was decided that a testing method, using cardiolipin antigen and having preselected qualities which would include the most desirable characteristics of existing technics, should be evolved. The purpose of this report is to describe the technic and antigen formula found to meet these conditions most closely.

Experience indicated that a satisfactory flocculation test procedure should be built around certain restrictive requirements which were chosen with the aim of creating conditions under which maximum reproducibility of results could be expected under the conditions existing not only in large, well-equipped laboratories but also those of the smaller laboratories of this and other countries. These prerequisites were that the test be (a) standardized, (b) reproducible, (c) a rapidly performed, simplified technic and (d) characterized by acceptable sensitivity and specificity. These requirements may be explained as follows:

A. *Standardized.*—Consistency in test behavior can be obtained only when reagents having identical reactivities are employed. In flocculation tests an accurate serologic standardization of the antigen is of prime importance but every other reagent or solution which can of itself effect test results should be exposed to a similar scrutiny. These conditions require that all test solutions be prepared or standardized in a control facility adequately equipped for such purposes.

B. *Reproducible.*—Reproducibility, as evidenced by results obtained in several laboratories on the same specimens or within one laboratory at different times, is promoted by incorporating into the technic simple mechanics for the preparation of antigen emulsions which may be easily followed and which will produce an emulsion having immediate maximum reactivity which will be maintained during the period of use. The technic must also include exact detailed instructions covering measurements of reagents to provide constant serum-antigen ratios and a simplified, definitive manner of reporting observed results. The brackets of reported results (not including quantitations), preferably three in number, should be broad enough to minimize the effects of minimal and unavoidable inaccuracies of

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From the Venereal Disease Research Laboratory, U. S. Marine Hospital, Staten Island 4, New York. Director—J. F. Mahoney, Medical Director, U. S. Public Health Service.

measurement inherent in the rapid handling of large numbers of specimens for serologic testing. Provision must also be made for the detection of zonal reactions encountered when an excess of reactive serum component is present.

C. *Rapidly performed, simplified technic.*—All other factors being equal, the more rapidly performed test renders the more effective service. This is most evident in pretransfusion testing but is also of importance when undelayed serodiagnostic verification is required for the diagnosis of early syphilis. Rapidity of test performance is also the principal determining factor of total number of tests that may be performed efficiently each day by the available technical personnel.

Simplicity of technic, involving a minimal number of reagents and manual manipulations, also influences test efficiency. The number of opportunities for mechanical error offered by any testing method are in direct proportion to the total number of reagents involved and the number of times these reagents and serums must be measured, mixed, or otherwise handled. These factors of simplicity and rapidity of performance are contained in a technic employing only two test solutions (antigen and saline), multiple testing on glass slides, short rotation periods, and microscopic reading.

D. Acceptable sensitivity and specificity.—Ideally, a test for syphilis should yield reports of absolute specificity and at the same time be extremely sensitive in the detection of syphilis reagin. Actually, no test yet devised meets these requirements in full. Positive serologic reactions are frequently obtained in nonsyphilitic individuals infected with leprosy, yaws, or malaria, and not infrequently in persons recently subjected to a variety of febrile conditions or to immunization procedures such as smallpox vaccinations. In addition, attention has recently been given to the less frequent false positive reactions occurring in nonsyphilitic individuals who are, otherwise, as far as can be determined, completely normal. Adequate evaluation of test sensitivity and specificity must, therefore, include consideration of the reactions obtained in groups of nonsyphilitic individuals such as these, who are likely to show a definite proportion of nonspecific positive reactions, as well as examination of the results in the two groups, syphilitic and nonsyphilitic.

The preselected phases of technic include the use of paraffin-ringed glass slides (*10*), 4-minute rotation periods, and microscopic reading. These constants were carried through all investigations and are a part of the selected technic. The remaining variable factors on which research was performed were: (1) optimum antigen formula, (2) saline formula, (3) manner of preparing antigen emulsion, and (4) interpretation of observed results.

The first of these variables was of primary interest. Antigens containing various proportions and concentrations of cardiolipin, lecithin, and cholesterol were tested. Mixtures of these antigens were prepared by rapidly adding antigen to measured amounts of saline. All antigen emulsions were then examined by performing tests with positive and negative serums. Critical comparison of antigen behavior could not be made from these findings, however, as the reactivities of these mixtures were not fixed, marked changes occurring during 15- to 30-minute periods.

Emulsions were also prepared and tested after being heated at 37°, 56°, and 60° C. for short periods of time. Exposure to the 2 higher temperatures increased reactivity levels but these heated emulsions were not entirely satisfactory as they did not remain constant during a 1-day testing period. Small time-variants (1 or more minutes) between the preparation and heating periods also had definite influences on the reactivity of these emulsions.

It was evident, from these findings, that a method for the preparation of a stable, reproducible antigen emulsion which would meet established test prerequisites, must be found before further testing of antigens could be accomplished. An emulsion that met these conditions was produced by slowly adding 1 part of antigen to 0.8 part of saline and then further diluting with 8.2 parts of saline. This method was adopted as standard procedure. Heating of emulsions, prepared in accordance with this procedure, was not necessary as the immediate level of reactivity remained constant during the testing period.

Concentrations of salt (NaCl) in the saline solutions, used in preparing antigen emulsions, were also found to be one of the determining factors of test reactivity. Phosphate salts, per se, in the minimal quantities necessary for buffering, were found to have no detectable effect and only very slight differences could be associated with pH changes in the saline pH range of 6.0 to 7.0. All salt solutions tested were buffered to pH 6.0±0.1.

Emulsions were prepared as described above, from antigens containing several proportions of cardiolipin and lecithin with 0.9 percent cholesterol using salines containing 0.5 percent to 5.0 percent sodium chloride, and tested as recorded in table 1. This concentration of cholesterol was chosen because it was the maximum amount that would remain in solution at selected storage temperatures and the use of lower concentrations decreased antigen reactivity. These tests were accomplished by adding 1/60 ml. antigen emulsion to 0.05 ml. heated serum and rotating for 4 minutes. Only a few of the antigens tested are listed but the ones

TABLE 1.—*Reactivity of cardiolipin antigens* with pooled positive and negative serums*

Antigen	Cardiolipin	Lecithin	Saline	Serums**					Negative
	Percent	Percent	Percent	A	B	C	D	E	
1	0.01	0.01	1	—	—	—	—	—	—
2		.03		—	—	—	—	—	—
3		.05		±	—	—	—	—	—
4		.07		3	2	1	±	—	—
5		.09		4	3	2	1	±	—
6		.12		4	4	2	1	±	R
7		.15		4	4	3	2	1	R
8		.20		4	4	3	2	1	R
9	.02	0.02	1	—	—	—	—	—	—
10		.06		—	—	—	—	—	—
11		.10		±	±	—	—	—	—
12		.14		3	3	2	±	—	—
13		.18		4	4	3	2	±	—
14		.24		4	4	4	2	1	R
15		.30		3	3	3	2	1	R
16		.40		3	2	1	±	±	R
17	.03	0.03	1	—	—	—	—	—	—
18		.09		—	—	—	—	—	—
19		.15		1	±	—	—	—	—
20		.21		4	3	3	2	±	—
21		.27		4	4	4	3	1	—
22		.36		4	4	3	3	2	R
23		.45		2	2	±	—	—	—
24		.60		1	—	—	—	—	—
25	.05	0.05	1	—	—	—	—	—	—
26		.15		±	±	—	—	—	—
27		.25		±	±	±	—	—	—
28		.35		1	±	±	—	—	—
29		.45		1	±	±	—	—	—
30		.60		1	±	±	—	—	—
31		.75		1	±	—	—	—	—
21	.03	0.27	0.5	4	1	—	—	—	—
			2.0	4	4	4	4	1	R
			3.0	4	4	4	4	2	R
			4.0	4	4	4	4	1	R
			5.0	4	4	4	4	±	R

±, 1, 2, 3 and 4=degree of positive reaction in pluses; —=negative; R=rough negative.

*All antigens contained 0.9 percent cholesterol.

**Representing progressively weaker positive serums prepared by mixing pooled positive with pooled negative merthiolated serum.

presented demonstrate trend effects of varying proportions of the antigen constituents.

Reactions obtained with antigens containing 0.03 percent cardiolipin indicated that this concentration of cardiolipin was optimum although antigens containing lesser amounts of this substance also gave definite reactions with weakly positive serums. These latter antigens, however, yielded an excessive number of zonal reactions in strongly positive serums. Failure of antigens containing 0.05 percent cardiolipin to react with moderately positive serums indicated that this amount of cardiolipin was excessive.

Maximum reactivity, associated with good negative results, was obtained with antigen 21 wherein 1 part of cardiolipin was combined with 9 parts of lecithin and 30 of cholesterol. Further proportionate increases of lecithin produced "rough" reactions in the negative tests and cholesterol content could not be increased due to restrictions of maximum solubility. As antigen 21 was found to remain in solution at temperatures as low as 0° C., this formula was accepted as standard.

Antigen emulsion reactivity was increased parallel with increases in salt content of the salines used. However, the type of particle produced by the more concentrated salines and the roughness of the emulsion in negative serum led to the choice of the 1 percent saline as standard. The 0.5 percent saline failed to sufficiently activate antigen emulsions.

The antigen and saline formulas having been selected and a method for preparing antigen emulsion evolved, only the choice of a suitable manner of reporting observed test results remained. For this purpose the 3 wordings—positive, weakly positive, and negative—have been chosen. The appearance of each kind of test is slightly different from any other and technicians should have training or experience in the method used. However, rough reading equivalents can be used in describing these 3 zones of reaction. Positive includes the usual 4+, 3+, and 2+ reactions; weakly positive, those of 1+ and ±; and negative, those wherein no clumping or only slight roughness is observed. The use of these numerals or pluses, for actual reporting of the results of this test, is not recommended.

TEST PROCEDURE

Antigen emulsion is prepared by pipetting 0.4 ml. saline[1] to the bottom of a 30 ml. round bottle and adding 0.5 ml. antigen,[2] drop by drop, from the lower half of a 1.0 ml. pipette (graduated to the tip), while the bottle is being rotated on a flat surface. The last drop of antigen is blown from the pipette, without touching the saline, and rotation is continued for 10 more seconds. Add 4.1 ml. saline (from 5.0 ml. pipette), place top on bottle, and shake vigorously for 10 seconds. Antigen emulsion is then ready for use and may be used for 1 day if stored at room or refrigerator temperature.

Microscopic readings are made, immediately after rotation, at 100× magnification. Antigen particles, in properly prepared emulsions, appear as short rods. Clumping of these particles should be reported as follows:

Reading	*Report*
Large clumps	Positive.
Medium clumps	
Small clumps	Weakly positive.
No clumping or slight roughness.	Negative.

Zonal reactions are recognized by atypical or feathery clumping where a few large or medium-sized clumps are associated with many unclumped particles. Serums yielding such reactions should be

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[1] Buffered saline:

Sodium chrolide (A. C. S.)	10.0	gm.
Secondary sodium phosphate ($Na_2HPO_4+12H_2O$)	0.093	gm.
Primary potassium phosphate (KH_2PO_4)	0.170	gm.
Formaldehyde, neutral, reagent grade	0.1	ml.
Distilled water	1000.0	ml.

Final pH 6.0±0.1.

[2] Antigen formula:

Cardiolipin	0.03 percent
Lecithin (approximately)	0.27 percent
Cholesterol	0.9 percent
Absolute alcohol	q. s.

diluted 1–5 and 1–25 and retested. If either of these dilutions produce positive reactions a positive report should be made.

This test will be referred to as the V. D. R. L. slide test.[3]

SENSITIVITY AND SPECIFICITY

Comparative results obtained with this and several other serologic tests for syphilis on 1,046 specimens obtained from syphilitic donors taken before and after treatment are presented in table 2. For purposes of comparison the weakly positive reports are included under the "Doubtful" column in this tabulation.

This series is too small and incomplete to permit the elaborate, detailed analysis necessary before any opinion concerning the adequacy of the test can be found. The results are, however, encouraging in that the relatively high proportion of positive results and low proportion of doubtful readings obtained in the V. D. R. L. slide test indicate satisfactory sensitivity and specificity. Additional encouragement is obtained from the fact that in another series negative reactions were obtained with the V. D. R. L. slide test on 642 serums which gave negative Kahn standard and Mazzini flocculation test results.

TABLE 2.—*Reactions observed on 1,046 specimens of blood obtained from syphilitic donors before, during, and after treatment*

Test	Positive		Doubtful		Negative		Omitted
	Number	Percent	Number	Percent	Number	Percent	
Kahn standard	613	59.1	80	7.7	345	33.2	8
Kolmer	624	60.2	73	7.0	340	32.8	9
Kline diagnostic	444	42.4	202	19.3	400	38.2	0
Kline exclusion	668	63.9	182	17.4	196	18.7	0
Eagle flocculation	557	55.6	45	4.5	399	39.9	45
Hinton	510	52.3	72	7.4	394	40.4	70
Mazzini flocculation	603	57.6	135	12.9	308	29.4	0
			Weakly positive*				
V. D. R. L. slide	627	59.9	51	4.9	368	35.2	0

*Weakly positive reactions are listed under the "Doubtful" heading for purpose of comparison.

Essentially negative results were also obtained with the V. D. R. L. slide test on 224 serums from presumably nonsyphilitic, treated, malarious donors. Unfortunately, the blood specimens in this group were not of sufficient quantity to permit comparative tests by the other standard technics.

These findings are offered without comment for they are considered to be insufficient evidence on which to base an opinion of adequacy. For this reason, this report is preliminary in nature and should not be construed as a final or complete record of comparative test efficiency.

SUMMARY

Prerequisites for a satisfactory slide flocculation test are stated and a condensate of the technic found to meet these requirements is presented.

Preliminary tabulation of a small series of V. D. R. L. test results compared with the results of other methods indicates a satisfactory level of sensitivity and specificity. Further study is necessary, however, before a sound evaluation can be made.

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[3] A detailed copy of the technic for this test may be obtained by request from the Venereal Disease Research Laboratory, U. S. Marine Hospital, Staten Island 4, New York.

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Masking of Early Syphilis by Penicillin Therapy in Gonorrhea

Stephen Fromer, Assistant Surgeon, John C. Cutler, Senior Assistant Surgeon, and Sacha Levitan, Senior Assistant Surgeon (R), United States Public Health Service

Early workers in the field of penicillin therapy of gonorrhea recognized the danger of the treatment directed toward gonococcic urethritis as being sufficiently spirocheticidal to alter or mask the usual symptomatology of a concomitantly acquired syphilis. More recent experience has tended to confirm this early impression and to point out a sequence of symptoms which may be helpful in the early recognition of dual infections.

In a recent report, Leifer and Martin[1] recite specific instances in which the progress of an oncoming syphilis probably was influenced by the treatment with penicillin of an intercurrent gonorrhea. These authors mention the occurrence of chills, fever, and malaise developing early in the course of the therapy as a possible indication of dual infection. Buchholtz and Cutler, in an unpublished review of an enormous penicillin material, are also of the opinion that a febrile reaction to penicillin therapy of gonorrhea may be considered as strongly indicative of the coexistence of syphilis, either active, latent, or in the stage of incubation.

With the increasing use of penicillin for treatment of gonorrhea, it has become evident that the development of syphilis acquired with, or prior to, the gonococcic infection may be altered or masked. In this paper a clinical observation is reported by which it appears possible to postulate the coexistence of syphilis prior to the development of clinical (and possibly serologic) evidence of the disease. Similar reports on isolated cases have already appeared in the literature.

In the patient treated for gonorrhea with penicillin, a syphilitic infection acquired either before or at the time of the gonorrheal infection may run a usual course with development of a chancre, or may be manifest by presence of generalized lymphadenopathy or other clinical evidence of secondary syphilis or a positive blood without the appearance of a chancre. (The incubation period of the syphilis may also be lengthened by the small dose of penicillin usually employed in the treatment of gonorrhea which is known to be inadequate to cure syphilis.) Thus any patient treated for gonorrhea

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From the Venereal Disease Division, U. S. Marine Hospital, Stapleton, Staten Island, N. Y.

[1] Leifer, W.; Martin, S. P.: Effect of penicillin on course of early syphilis. J. A. M. A., 130: 202–205, 1946.

with penicillin must be instructed to have, at the least, monthly blood tests for syphilis for 4 months after receiving the drug to uncover any infection which may have been masked by inadequate treatment.

In the course of treatment of about 1,000 patients with early syphilis, 66 were seen who gave a history of having had penicillin therapy for gonorrhea within the incubation period of syphilis. None of these patients gave a history of a penile ulcer at the time of the first course of treatment. Eighteen of these men gave a history of a chilly sensation and/or fever accompanying the treatment (as will be pointed out such a reaction is very rare in uncomplicated gonorrhea); 16 remembered no systemic manifestations; and in the others there was no record of reaction. Treatment of early syphilis with penicillin is accompanied by a Herxheimer reaction in about 90 percent of all cases, while treatment of gonorrhea with penicillin is very rarely accompanied by fever. According to a personal communication from Dr. Maurice Buchholtz, in the penicillin treatment of over 2,000 patients with simple acute or chronic gonorrheal urethritis unaccompanied by clinical evidence of syphilis, only 2 or 3 patients were observed to have a febrile reaction which could not be explained on the basis of a toxic reaction to penicillin or to the coexistence of syphilis. Thus it seems, as will be pointed out in the discussion, that the occurrence of fever with the penicillin treatment of gonorrhea should strongly suggest the coexistence of syphilis.

The Herxheimer reaction is assumed to be the result of the liberation of toxic substances in the course of the destruction of the spirochetes by penicillin. The phenomenon, appearing usually within 3 to 8 hours of the first injection, consists of chills, fever, headache, nausea, edema of or pain in the primary ulcer and surrounding tissues, swelling of or pain in enlarged lymph nodes, appearance of a secondary eruption, or enlargement, brightening, and extension of an existing secondary eruption, or of any combination of these signs or symptoms. In the course of treatment of this large group of patients the impression has been gained that patients receiving therapy for primary syphilis of only a few days' duration show febrile reaction less frequently than those whose disease is of longer standing and who are likely to show only slight local edema. The most probable explanation for this fact is that in older infections the body is more heavily parasitized so that treatment of older infections will liberate larger quantities of reaction-producing substances and thus produce more severe subjective response. The reaction or lack of reaction in any patient infected with two diseases may thus be explained by several methods as will be shown.

A promiscuous patient may have acquired syphilis prior to becoming infected with gonorrhea and be in the incubation period as may be shown by the case of J. M., whose history follows:

The patient was treated twice during a 3-week period, mid-June and early July 1945, for urethritis diagnosed as gonorrheal for which he was given penicillin in unknown dosage. The second infection may have been a reinfection, as the patient had reexposed himself. He gave a history of chills and fever accompanying each course of treatment and of having noticed bilateral swelling of the inguinal lymph nodes prior to the first course of therapy, but of having had no penile lesion. Serologic tests for syphilis were not performed at the time of treatment for the urethritis. At a routine examination, mid-August 1945, the patient was found to have a positive serologic test for syphilis, and on August 25 he was hospitalized. At that time the skin and mucous membranes were clear; there was slight enlargement of the inguinal lymph nodes but the patient showed no other clinical evidence of syphilis. Three days later physical examination revealed a maculopapular eruption confined to the glans penis and showing Treponema pallidum by darkfield examination. With syphilis probably in the invasive stage at the time of acquisition of an acute gonorrheal urethritis, it can be understood why the patient should have had fever when given penicillin.

The patient may acquire syphilis and gonorrhea at the same time as is considered probable in the cases of M. H. and L. M. which follow:

M. H.—In March 1945, following repeated exposure to the same girl during a 2-month period, the patient developed gonorrheal urethritis for which he was treated with penicillin, dosage unknown; he noted chills and fever during the course of injection. One month later, without sexual exposure, he again developed urethral discharge and a small penile ulcer, penicillin treatment for which was again accompanied by a febrile reaction and healing of the ulcer. The blood was found to show a doubtful serologic test for syphilis shortly after the second course of treatment and the patient was referred for antisyphilitic therapy about a month after the second course of penicillin. Physical examination revealed generalized lymphadenopathy and a faint macular eruption of the chest, which had not been observed by the patient, and phimosis. An occipital node was found to contain T. pallidum. The patient was considered to have secondary syphilis.

L. M.—The patient was exposed in August 1944 and developed gonorrhea which was treated with 210,000 units of penicillin. There was no febrile reaction to treatment. On December 25, 1944, with no subsequent sexual exposure, he noted a small penile erosion which did not heal. No subsequent serologic tests were made. He had not noted cutaneous eruption. On January 26, 1945, upon admission to hospital, he was found to have a faint maculopapular eruption of the back and multiple shallow erosions of the glans penis, as well as generalized lymphadenopathy. The penile erosions showed T. pallidum. The patient was considered to have secondary syphilis.

In the event of simultaneous acquisition of a double infection, which is probably illustrated by the foregoing 2 case reports, several avenues of development are possible.

The incubation period of gonorrhea may run from 7 to 30 days, or even longer, while that of syphilis may run from 7 days to 4 months. If the incubation period of syphilis is short, and that of gonorrhea long, the patient may be highly parasitized by the time the gonorrhea is treated and thus react to the liberation of products of spirochetal destruction. But if the invasion of the host by the T. pallidum is slow, and the incubation period of gonorrhea short, the quantity of toxic material liberated by penicillin may not be sufficient to give rise to a reaction. The cases of L. M. and M. H. may illustrate these points, with M. H. representing the possible simultaneous acquisition of the two diseases with slow development of gonorrhea and rapid invasion of syphilis, and with L. M. demonstrating the possible rapid invasion of the gonococcus and the slow spread of the T. pallidum.

While the diagnosis of gonorrhea in M. H. was not confirmed by culture at the time of the first infection, the diagnosis is rendered highly probable by the fact that the patient was reinfected with culturally proved gonorrhea about 4 months after antisyphilitic therapy. The signs and symptoms were stated to be identical. The fact that the incubation period of gonorrhea at this time was 20 days suggests that the patient may likewise have had a long incubation period in the first infection, during which he might have been heavily parasitized by T. pallidum. This patient had had repeated exposure to one woman for a period of several months prior to his first bout of gonorrhea (although it is not known whether she had any other contacts), and this woman was found to have syphilis about 1 month after M. H. first showed evidence of gonorrhea. It is probable that he acquired both infections from the same girl and that the first course of penicillin, to which he responded with fever, merely delayed the appearance of the penile ulcer which he described as accompanying the "gonorrhea" which reappeared 1 month after treatment. This urethral discharge may have been only a purulent balanitis which is often seen accompanying a chancre under a tight foreskin and which is not infrequently called gonorrheal by the inexperienced observer.

L. M. is shown to have required approximately 4 months for the development of what is considered to be the first manifestation of his syphilitic infection which may have been either primary or secondary syphilis. It is not known whether the blood was positive prior to the appearance of the penile erosion. At the time of his first course of penicillin for gonorrhea he showed no reaction. It may here be postulated that at the time of treatment for gonorrhea the degree of invasion by T. pallidum may have been slight so that not enough material was liberated from destruction of the invaders to give rise to subjective symptoms. Whether the penicillin was responsible for the long incubation period cannot be said, as the disease is sometimes known to require 4 months' incubation.

Although the thesis is based upon the history given by the patient, it is felt that the findings presented are well enough established to justify their reporting. It is well known that in medical histories references to dates of significant events are usually, at the most, only approximations, especially if obtained several months after the event.

While only 66 cases gave a history of having been treated for gonorrhea not accompanied by a penile ulcer within 4 months prior to the development of syphilis, it is found that 18 of these patients showed signs at the time of treatment which may be considered as a Herxheimer reaction and thus an indication of the presence of syphilis, in the absence of other clinical evidence of the disease.

SUMMARY

The observation is made that the occurrence of chills or fever accompanying penicillin therapy for gonorrhea not obviously complicated by syphilis is strong presumptive evidence of the coexistence of syphilis. Although there are exceptions to the rule, it appears to be a safe precaution to subject a patient displaying a febrile reaction to penicillin to close scrutiny, clinical and serologic, for a period of 4 months following therapy. Within that period additional evidence of an oncoming syphilis may be expected to develop.

The Effect of the Sodium Salts of Crystalline Penicillin G, Crystalline Penicillin X, and Commercial Pencillins on Darkfield Positive Lesions of Syphilis

Sidney Olansky, M. D.,[1] and Lawrence E. Putnam, M. D.

For the first time in the history of the venereal diseases there is available to the physician a single drug (penicillin) which is effective against the spirochete of syphilis and the diplococcus of gonorrhea. There is evidence to show that infection with syphilis can be masked by the dosage of penicillin given for the treatment of gonorrhea. The individual who has been concurrently infected with syphilis and gonorrhea and who takes 1 day of penicillin treatment for gonorrrhea without further observation is a candidate for delayed syphilis. This creates a serious problem for public health and other clinics which treat large number of patients with gonorrhea.

While penicillin has been generally thought to be a single drug entity there is definite evidence that at least 4 well-known species of penicillins are found in commercial penicillin. In a preliminary study of the sodium salts of penicillin X and commercial penicillin, Welch, Putnam, Randall, and Herwick (*1*) found that penicillin X was apparently more effective than commercial penicillin in gonorrhea. Preliminary studies showed that 64 of 68 cases were cured with a single dose of 25,000 units of penicillin X. Further studies gave a total of 112 cures out of 128 cases (87.5 percent) with this dosage, as compared with 37 of 58 cases (64 percent) cured with 25,000 units of commercial penicillin. The superiority of penicillin X over commercial penicillin led to the thought that perhaps one of the several forms of penicillin might have a selective action on the gonococcus. It would be advantageous if we could find a form of penicillin for the treatment of gonorrhea which would not have the disadvantage of masking the primary stage of syphilis.

In this study we tested the effectiveness of the administration of single doses of 50,000 units of two crystalline penicillins (G and X) as well as several commercial varieties on the rate of disappearance of active spirochetes in darkfield positive syphilitic lesions. The penicillin was usually injected in the morning and darkfield examinations performed at 2-hour intervals throughout the day, and then again at 24 hours. In some cases injections were given in the evening and examinations made on the following day. When the dark field showed active spirochetes at 24 hours no further tests were made. The lesions were inspected clinically for evidence of healing and all patients were observed for Herxheimer reactions as further evidence of antisyphilitic action. After 48 hours of observation all patients were started on a routine treatment for syphilis including penicillin.

RESULTS

Each of 10 patients with darkfield positive lesions of primary syphilis was given 50,000 units of crystalline sodium penicillin G. Six of these patients had negative darkfield examinations 8 hours after treatment. Two were negative at 10 hours and two at 14 hours. The average in this group was 9.6 hours. Three patients had Herxheimer reactions. All three were in the group which had negative darkfield reactions in 8 hours. Two of the patients who received penicillin G

From the Rapid Treatment Center, Gallinger Municipal Hospital, Washington, D. C., and the Food and Drug Administration, Federal Security Agency.

[1] Senior Assistant Surgeon (R), U. S. Public Health Service.

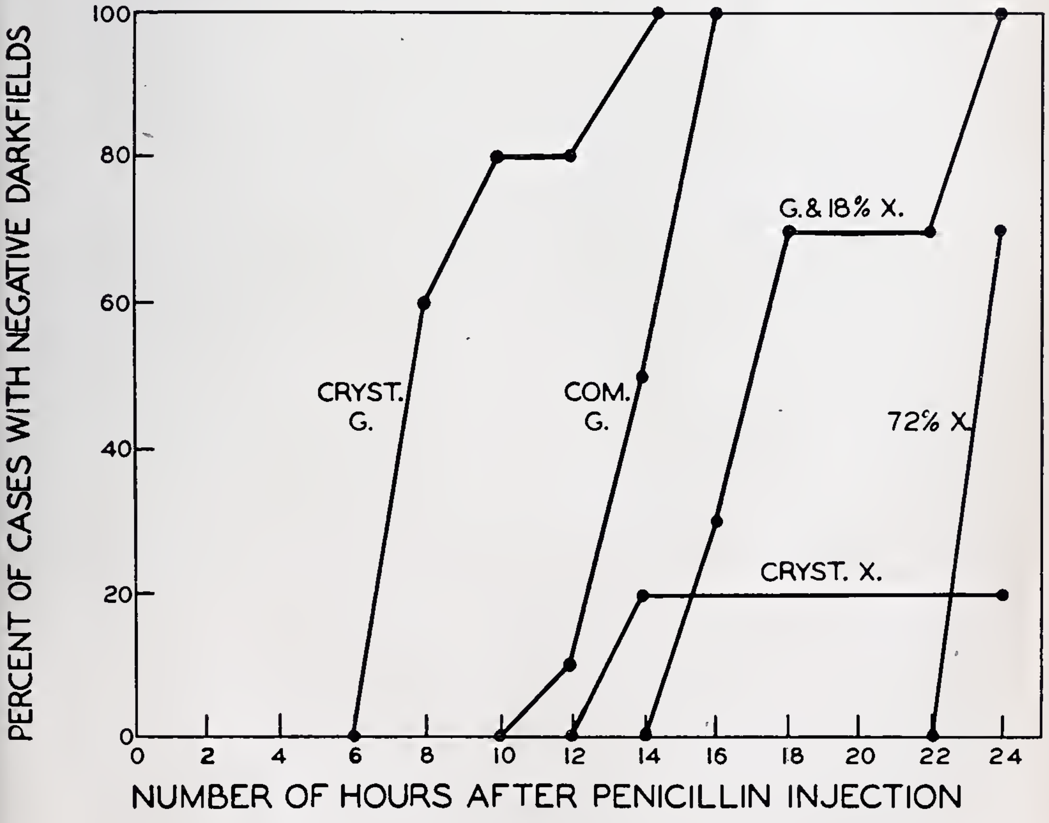
had gonorrhea before treatment. Forty-eight hours after treatment there remained only a slight, watery urethral discharge which was negative on culture for the gonococcus.

Each of 10 patients was given 50,000 units of crystalline sodium penicillin X. Two of these patients had negative darkfield reactions after 14 hours but eight of them still showed active treponemas 24 hours after the injection. Both patients who had negative darkfield reactions at 14 hours had Herxheimer reactions. Six patients who received penicillin X had gonorrhea before treatment. Forty-eight hours after treatment none of these had a discharge and urethral cultures were negative for the gonococcus.

While these groups are rather small, penicillin G seemed to be more efficacious than penicillin X as measured by the disappearance rate of the surface treponemas from the lesions. Because of this difference it was decided to test three additional products: (a) a commercial preparation composed principally of penicillin G, (b) a commercial penicillin consisting primarily of penicillin G but containing also 16 to 18 percent of penicillin X, and (c) a commercial penicillin containing 72 percent of penicillin X.

Each of 10 patients was treated with 50,000 units of commercial penicillin G. Of these, one had a negative dark field at 12 hours, four became negative at 14 hours, and five at 16 hours. The aver-

TIME OF DISAPPEARANCE OF SPIROCHETES
WITH VARIOUS TYPES OF PENICILLIN



age in this group was 14.8 hours. There were two Herxheimer reactions in this group, one in the patient who became negative in 12 hours and the other in one of the patients who became negative in 14 hours.

Each of 10 patients was treated with 50,000 units of a commercial penicillin consisting principally of penicillin G which contained 16 to 18 percent of penicillin X. Of these patients, three had negative darkfield reactions at 16 hours, four at 18 hours, and three at 24 hours. The average in this group was 19.2 hours. There was one Herxheimer reaction in this group in a patient who had a negative dark field at 16 hours.

Each of 10 patients was treated with a commercial penicillin containing 72 percent of penicillin X. Seven of these patients became negative at 24 hours while three were still positive at that time. The average in this group was 24 plus hours. There were no Herxheimer reactions in this group of patients.

DISCUSSION

These results seem to indicate, contrary to the suggestion of the studies by Dunham and Rake (*2*), that crystalline penicillin G is an effective treponemicidal agent. As the proportion of penicillin X was increased and penicillin G diminished, the preparations appeared to become less effective antisyphilitic agents as measured by the disappearance rate of the treponemas from the darkfield positive lesions. All patients having Herxheimer reactions showed a definite healing response in the surface lesions within 24 hours and became darkfield negative more quickly than the other patients in each group. This observation may be explained by either or both the following hypotheses: (1) that the fever accelerated the antisyphilitic action of the penicillin, or (2) that the fever was merely a demonstration of the increased antisyphilitic action of the penicillin in that patient.

SUMMARY

While the patients studied are few in number, the following conclusions appear to be justified:

1. All types of penicillin tested had some spirocheticidal activity as demonstrated by the accelerated disappearance of surface treponemas from darkfield positive lesions.

2. Crystalline penicillin G appears at least equally effective as compared with several commercial penicillin preparations, and penicillin X appears less effective than penicillin G in causing disappearance of spirochetes from darkfield positive lesions.

3. There was no indication that any of the products tested might not mask syphilis when used in the treatment of gonorrhea.

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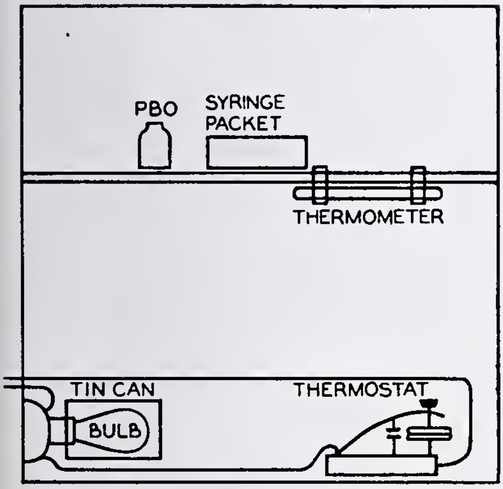
P. B. O. Oven

George E. Parkhurst, M. D.[1], and H. A. Sauberli, M. D.[2]

In September 1945, the State Department of Public Health began the use of penicillin in beeswax and oil (P. B. O.) for the treatment of gonorrhea in the clinics, but because of the difficulty of warming the penicillin material, syringe, and needles, filling the syringe with P. B. O., and administration, some health departments discontinued its use. In order to simplify heating the P. B. O., needles, and syringes, a special oven was devised.



WIRING DIAGRAM

A light metal commercial oven made to place on a one-burner kerosene stove with walls made of two layers of thin steel sheeting separated by a layer of asbestos was readily obtained, size 12″ x 12″ x 12″. Inside, a brooder thermostat was adjusted to regulate the temperature to 120° F. at shelf level. The heating unit is a 100-watt light bulb which is covered with a tin can to convert a large percentage of the radiant heat to convection heat. The equipment needed consists of oven, light bulb, electric cord, rock wool (bottom), thermometer, thermostat, socket, and plug. The total cost of equipment is $4.78.

The thermostat gives a temperature variation of about 4° F. at the shelf level. A thermostat costing $1.00 additional will give about a 2° variation, which after being adjusted for the correct temperature, might, in emergencies, be used in culturing organisms not requiring a more even temperature. The P. B. O., needles, syringes, and thermometer are placed on the shelf and within 15 minutes the material is sufficiently liquid for administration. One-hour clinics can easily use it by turning on the electricity when the clinic is started. It has been found helpful to have the patient in the same room with the oven so the penicillin can be given soon after it is aspirated from the bottle.

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[1] Director, Venereal Disease Control Service, Tennessee Department of Public Health; Surgeon, U. S. Public Health Service.

[2] Director, Field Technical Staff, Tennessee Department of Public Health.

CURRENT LITERATURE

NOTE: Abstracts of any article listed below are available on request. In addition, abstracts of all articles concerned with venereal diseases or related subjects which have been published in the better known journals both here and abroad during the passt 20 years are in the files. These are open to workers in the field. An asterisk (*) before a title indicates that the article is abstracted below.

AM. J. PUB. HEALTH, NEW YORK

In-service training in a State department of health. (VD staff.) Felix J. Underwood. 36 : 351–356, Apr. 1946.

AM. J. SYPH., GONOR. & VEN. DIS., ST. LOUIS

*Penicillin treatment of neurosyphilis. A preliminary report of seventy cases followed from four to twelve months. Augustus S. Rose, Laurence D. Trevett, Joseph A. Hindle, Curtis Prout and Harry C. Solomon. 29 : 487–493, Sept. 1945.

*Experimental gonococci urethritis in human volunteers. J. F. Mahoney, C. J. Van Slyke, John C. Cutler and Henrik L. Blum. 30 : 1–39, Jan. 1946.

*Cardiolipin antigens in the serodiagnosis of syphilis. A microflocculation slide test. Charles R. Rein and Hilfred N. Bossak. 30 : 40–46, Jan. 1946.

Studies on liver function. II. The value of laboratory tests in the prevention of arsenical toxicity with report of two unusual cases of encephalopathy. Ewart Hinds and Frederick Kalz. 30 : 70–81, Jan. 1946.

*The use of penicillin in the treatment of syphilis of the central nervous system. A report of 100 patients. J. Lamar Callaway, Ray O. Noojin, Arthur H. Flower, Jr., Beatrice H. Kuhn and Kathleen A. Riley. 30 : 110–124, Mar. 1946.

* The venereal disease problem in a woman's Federal reformatory. A study of women released over a period of one year. Hazel I. Blair. 30 : 165–172, Mar. 1946.

*The problem of reinoculation of human beings with Spirochaeta pallida. A review of the literature. Herman Beerman. 30 : 173–192, Mar. 1946.

Penicillin treatment of neurosyphilis. A preliminary report of seventy cases followed from four to twelve months.—This article presents the results obtained after 1 year's experience with the use of penicillin in the treatment of central nervous system syphilis in the Boston Psychopathic Hospital.

The 70 cases followed from 4 to 12 months were arbitrarily grouped into the paresis cases (including all cases with psychoses) and into other groups of tabes dorsalis, primary optic atrophy, and chronic meningovascular neurosyphilis. Penicillin was administered intramuscularly in doses of 50,000 O. u. per injection for 60 injections, a total of 3 million O. u. Most of the patients were also given malaria or fever cabinet therapy, in one-half the amount of fever generally considered to be sufficient.

Of the 70 cases, 28 were improved, 37 unchanged, and 5 worse, the greatest clinical improvement being found in the paresis group. In the 6 cases of primary optic atrophy, visual acuity and perimetric fields done at intervals of approximately 1 month have shown an apparent arrest in visual loss in 5 cases, questionable improvement occurring in 2 patients. Serologically multiple examinations of the spinal fluids have shown an immediate reaction of a temporary increase in cell count and total protein, followed by a gradual decrease in these and later in the intensity of the Wassermann reaction. Penicillin was not demonstrated to be of value in the overactive end stages of paresis, and there is a suggestion it may be detrimental to successful management. Penicillin alone, without fever therapy, was seen to be effective in 6 of the 7 cases of general paresis in which it was administered.

It is believed that penicillin is an active and effective therapeutic agent for late neurosyphilis, but the authors advise caution in interpretation of the results of this study, stating that the time has not arrived for the general use of penicillin in neurosyphilis.

Experimental gonococcic urethritis in human volunteers.—This is a report on an attempt to evolve an infecting technic capable of consistently producing experimental gonococcic urethritis in order that a projected study of prophylaxis might be carried out. The experiments with 241 human volunteers and varying methods are described in detail.

The authors make the following conclusions from the results of this study: None of the exposure methods used were capable of producing disease with consistency adequate for an experimental study of prophylaxis. The direct transfer of secretions from infected patients to the urethra of normal volunteers was considered the most effective method of transmitting infection, but it was not suitable for the study because the inoculum could not be adequately controlled. Gonorrhea acquired through the experimental method was symptomatically the same as gonorrhea acquired through natural transmission. The several strains used in the study showed no significant difference in their ability to produce experimental disease. No appreciable influence on the ability to produce the disease with cultured organisms was demonstrated by the use of various strains of Neisseria gonorrhoeae, the use of organisms exhibiting distinctive colony morphology, the relative contamination of the urethral mucous membrane, the number of organisms used in the inoculum, the vehicle in which the organisms were suspended, the volume of suspension used for inoculation, the period of time which the inoculum remained in the urethral canal, the presence of prostatic secretion in the urethral canal upon inoculation, or mild engorgement of the penis at the time of exposure.

The volunteers who had positive gonococcus complement fixation tests before inoculation developed disease less frequently than those having negative complement fixation tests. The mean time for the incubation period of experimental disease was from 3 to 5 days. No correlation was demonstrated between the production of disease and the age of the strain employed, the number of culture passages undergone by the organisms, or the composition of the media which maintained artificial growth.

Two strains employed frequently for comparison revealed no difference in the severity of symptomatology. Culture studies of individuals before the institution of this study showed approximately 1 percent having typical N. gonorrhoeae. Clinical and bacteriologic cure was attained by all patients developing experimental disease and receiving penicillin therapy. All individuals receiving sulfonamide-susceptible strains were cured with 1 treatment course of a sulfonamide drug, and all patients, except 1, infected with sulfonamide-resistant strains and receiving sulfonamide therapy failed to obtain cures. No case of a persistent carrier state was noted following experimental infection and subsequent treatment. A lower rate of experimental infections was noted in patients having a history of previous gonorrheal infection.

The bacteriologic technic and a history of strains of N. gonorrhoeae are presented.

Cardiolipin antigens in the serodiagnosis of syphilis. A microflocculation slide test.—Cardiolipin antigens, composed of cardiolipin (0.2 percent) and lecithin (1.3 percent), are reported as successfully adapted for use in a microflocculation slide test for the serodiagnosis of syphilis. The literature is reviewed and methods and preparation of satisfactory antigen emulsions with cardiolipin antigen are described.

The authors report that, in regard to the relative specificity of cardiolipin antigens as determined by comparative tests between individuals giving repeated seronegative reactions for syphilis and patients having nonsyphilitic diseases known to give false or nonspecific reactions, among 532 serums in the repeatedly seronegative group, no positive or doubtful reactions with the cardiolipin slide test were obtained. In a group of patients having diseases which give false positive reactions, 29 out of 39 individuals having malaria gave negative cardiolipin slide tests but were positive with the Kline diagnostic, Kline exclusion, and Mazzini tests; 10 patients had doubtful or positive reactions to all tests including the cardiolipin; in 6 out of the 10 patients giving doubtful or positive reactions there was evidence of syphilis. Serums from 37 patients having leprosy gave positive reactions ranging from 42 to 79 percent with all the tests including the cardiolipin slide test. The authors state that nonspecific reactions may be expected with cardiolipin antigen among infectious mononucleosis cases. Among serums from patients having active yaws or pinta, the positive results obtained in all tests including cardiolipin were the same as syphilitic serum reactions.

The sensitivity of the cardiolipin antigen in the microflocculation slide tests used in this experiment is reported as higher, without any apparent increase in nonspecificity, than that obtained with Kline diagnostic, Mazzini, Kahn, and Kolmer tests.

The use of penicillin in the treatment of syphilis of the central nervous system. A report of 100 patients.—The literature is reviewed and the authors report on the results of the treatment of 100 neurosyphilis patients with penicillin, each receiving 4,000,000 units intramuscularly over a 10-day period. All patients were observed at least 6 months.

Clinical improvement with marked improvement in spinal fluid findings was noted in 60 percent of these patients, 31 percent showed clinical improvement alone, 4 percent had improvement in spinal fluid findings without clinical change, and 5 percent showed clinical deterioration without improvement in spinal fluid findings. Negative spinal fluid Wassermann reactions were noted in 8 percent of the patients following treatment.

The best response to penicillin was found in those patients having no previous treatment and poorest response was exhibited in patients having previous "adequate" chemotherapy. Previous fever therapy given more than 6 months before penicillin therapy exerted no effect on the penicillin response. Febrile Herxheimer reactions were frequent but not serious. It is stated that in treating patients having concomitant cardiovascular syphilis extreme care should be taken to avoid severe Herxheimer reactions.

The findings of the authors indicate that penicillin therapy produced symptomatic and serologic transformations without serious reactions or inconvenience to the patient, and that the effect of penicillin is equal or superior to that of fever, arsenical, or heavy metal therapy. Combinations of fever with penicillin are recommended as probably being more valuable than either alone.

Case reports are presented as representative of various responses to penicillin treatment.

The venereal disease problem in a woman's Federal reformatory. A study of women released over a period of 1 year.—The results of a study of venereal disease among all women released from a woman's Federal reformatory over a period of 1 year are presented. A total of 692 women constitutes the series, 364 of whom were sentenced for May Act offenses.

One-third of the women released over one 6-month period had syphilis. Twenty-three and five-tenths percent of the white women and 63.1 percent of the Negro women released were infected. In an analysis of the offenses under which the women were convicted, syphilis was found in 40 percent of the women who were Internal Revenue violators, in 35 percent of the May Act violators, and in 23 percent of the white slave violators. More than one-third of the infected women were under 21 years of age and an additional 27 percent were from 21 to 25 years of age. One-half the infected women received intensive or modified intensive arsenotherapy, 15 percent had been adequately treated for syphilis before admission, and the remainder received standard arsenotherapy or treatment with penicillin. A small but increasing number had received previous therapy in rapid treatment centers.

Suggestions for follow-up treatment and observation were sought from previous treatment sources and further syphilis therapy withheld unless relapse occurred. An attempt was made to provide adequate treatment for all cases, but where this was not possible the State health department furnished a summary of treatment on release so that appropriate follow-up could be made.

The percentage of women having gonorrhea was 21.5 percent; of these, one-half gave a history of previous treatment. There was little difference in prevalence between white and Negro women. Twenty percent of women convicted on forgery charges had gonorrhea, and 32.9 percent of the May Act violators were infected. Fifty-nine percent of the women having gonorrhea were under 21 years of age, and 87.1 percent were under 26 years of age. All cases of gonorrhea in pregnant women were sulfonamide resistant.

In this study, it was shown that the culture method of diagnosing gonorrhea was much more accurate than smears, and that white women were more resistant to sulfonamides than were Negro women. Sixty-one percent of gonorrhea cases were cured on one conservative course of sulfathiazole. The author states that large doses of sulfonamide drugs will cure about 50 percent of cases not responding to conservative doses.

The problem of reinoculation of human beings with Spirochaeta pallida. A review of the literature.—Beerman states that the recent history of syphilology shows that the introduction of each new curative agent or treatment method is accompanied by increased reports of reinfections. This may be due to a tendency on the part of the supporters of the new therapy to accept less rigid criteria for distinguishing between reinfection and relapse.

The widening use of intensive treatment methods has again raised this question, and while there may be some justification in the claim that foreshortened treatment schedules prevent the development of immunity and increase both the possibility and probability of reinfection, the whole concept of syphilis reinfection, superinfection, and immunity in human beings must be reexamined.

The author gives a complete and extensive review of the literature and makes the following conclusions: reinoculation with Treponema pallidum is successful in all phases of untreated human syphilis (superinfection), but in paresis the number of successful reinoculations is small. The reinoculation lesions resemble those representing the phase of syphilis in which the patient is at the time of reinoculation. The incubation period is somewhat shortened and the course of the new infection may be abortive. Reinoculation of patients supposedly "cured" of syphilis (reinfection) has been rarely reported. The new lesions resulting from reinoculation are thought to be truly syphilitic and not the result of trauma.

The data on reinoculation of human beings with syphilis are not sufficient to answer definitely the question as to whether reinfection is possible in man. While there is evidence that reinfection (or superinfection) may occur, the data cannot be construed as a rational basis for the now voluminous number of cases of reinfection reported in patients treated by intensive therapy for syphilis. On the other hand, since there are no absolute criteria of biologic cure nor adequate means to identify asymptomatic infections in man, it is possible that reinfections may take place on a scale larger than hitherto suspected.

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Canad. M. A. J., Montreal

*Results of penicillin therapy. A report for the Joint Services Penicillin Committee. R. F. Farquharson, Philip Greey and S. R. Townsend. 53 : 1–9, July 1945.

Results of penicillin therapy. A report for the Joint Services Penicillin Committee.—The over-all results in the penicillin treatment of various infections, including syphilis and gonorrhea, are reported by the Joint Services Penicillin Committee. The study was made during the period October 1943 through December 1944 and the patients observed were personnel of the Armed Forces of Canada.

Among 1,000 cases of gonococcic urethritis in males, treated with a total dosage of 90,000 to 120,000 units of penicillin over a period of 15 hours, the failure rate on a single course of penicillin was approximately 5 percent, with no failures among those patients who received additional penicillin treatment.

Of 110 women having gonorrhea who received total dosages of 200,000 units of penicillin intramuscularly in 20 injections at 3-hour intervals, the gonococcus was demonstrated in 67, the bacteriologic findings were not available in 23, and the remaining 20 were treated on a clinical diagnosis. Five cases were considered failures, and the authors state that because the gonococcus is not easily demonstrable in females, the failure rate was probably greater.

Cases of gonococcic arthritis responded variously to penicillin treatment, the early cases showing far better results than those of long duration. Satisfactory results are reported in the treatment of gonococcic ophthalmia and uveitis with penicillin.

Clin. Med., Waukegan

Biologic false positive tests for syphilis. Irving J. Wolman. 53 : 67–68, Mar. 1946.

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Analysis of neuropsychiatric rejectees from the State of Tennessee. Orman C. Perkins 7 : 9–18, Jan. 1946.

Outline of antisyphilitic treatment in a State hospital. Preston W. Thomas. 7 : 55–58, Feb. 1946.

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Epidemiological notes. (VD control in Austria.) 2 : 233–240, Mar. 31, 1946.

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Venereal disease control in Florida. R. F. Sondag. 38 : 28–43, Feb. 1946.

Hosp. Corps Quart., Washington

Psychological prophylaxis for VD. John F. Tychyn. 19 : 16, Apr. 1946.

Hospitals, Chicago

Inter-American cooperation builds health program in Paraguay. (VD control.) Richard J. Plunkett. 20 : 70–72, Mar. 1946.

Illinois M. J., Oak Park

*Facilities for the rapid treatment of syphilis. 89 : 110–111, Mar. 1946.

Facilities for the rapid treatment of syphilis.—The development of rapid forms of therapy for syphilis is discussed, including the one now commonly used which combines the therapeutic effects of penicillin, arsenicals, and heavy metals administered to the patient under hospital management. The "5–12–3" plan, incorporating 5 injections of an arsenical, 1,200,000 units of penicillin divided into multiple doses, and 3 injections of bismuth subsalicylate, all administered over a period of from 5 to 9 days, is now thought to cure 80 to 90 percent of patients with early syphilis.

In 19 Illinois hospitals rapid treatment center facilities have been set up for the care of patients with primary and secondary syphilis who are indigent or who have been referred by private physicians. Admission of patients to such facilities depends on the confirmation of the suspected diagnosis by darkfield examinations performed in designated laboratories or by a series of blood tests in conjunction with clinical findings and appropriate medical history.

In certain counties of the States, excluding areas within a 50-mile radius of Chicago and St. Louis, arrangements have been made with county medical societies whereby the department of health will pay $10.00 to any physician referring a case of primary or secondary syphilis to a rapid treatment facility. Referral procedure is described and a list of hospitals offering rapid treatment is given.

INDIAN M. GAZ., CALCUTTA

The complement-fixation reaction in gonorrhoea. S. D. S. Greval and A. B. Roy Chowdhury. 80 : 551–554, Nov. 1945.

INTERNE, NEW YORK

Treatment of infections with penicillin given orally. Paul A. Bunn. 12 : 182–188, 227, Mar. 1946.

J. A. M. A., CHICAGO

Prolonging the effects of penicillin by chilling. Max Trumper and Gershom J. Thompson. 130 : 627–630, Mar. 9, 1946.

Specificity of the Kahn reaction. Current Comment. 130 : 640, Mar. 9, 1946.

Action of penicillin, especially on Treponema pallidum. Chester N. Frazier and Edward H. Frieden. 130 : 677–683, Mar. 16, 1946.

Penicillin treatment of the syphilitc infant. Norman R. Ingraham, Jr., John H. Stokes, Herman Beerman, John W. Lentz, Paul Gyorgy and Elizabeth K. Rose. 130 : 694–696, Mar. 16, 1946.

Treatment of early syphilis with penicillin. Arthur G. Schoch and Lee J. Alexander. 130 : 696–698, Mar. 16, 1946.

*Penicillin in the treatment of neurosyphilis. Paul O'Leary, Louis A. Brunsting and Orville Ockuly. 130 : 698–700, Mar. 16, 1946.

Antivenereal measures in the Seine District. Foreign Letters. Paris. 130 : 811, Mar. 23, 1946.

Possible reinfection in patient treated for congenital syphilis. (Case report.) Queries and Minor Notes. Wander L. Porter. 130 : 826, Mar. 23, 1946.

State legislation. (Premarital legislation-Mississippi.) Organization Section. 130 : 880, Mar. 30, 1946.

Penicillin treatment of syphilis in the British Army. Foreign Letters. 130 : 963, Apr. 6, 1946.

Delayed sensitization to penicillin similar to serum sickness. Clinical Notes, Suggestions and New Instruments. John A. Strazza, Jr. 130 : 1071, Apr. 20, 1946.

Drive on prostitution as Army venereal rate rises. Organization Section. 130 : 1251, Apr. 27, 1946.

Penicillin in the treatment of neurosyphilis.—After a 2-year study, the authors report on 100 neurosyphilis patients treated by various systems in which penicillin was employed.

Penicillin was given by intramuscular, intravenous, and intraspinal routes to these patients in doses varying from 1,200,000 to 8,000,000 units in periods of 7 to 10 days. The larger dosages did not increase the degree of improvement. It was found that while there was a slight superiority in the intravenous administration over the intramuscular technic, the success of the former was offset by its technical difficulties and complications.

Meningeal neurosyphilis responded satisfactorily to penicillin both clinically and serologically, while persons who had the parenchymatous forms of the disease were only slightly benefited.

The combined use of penicillin and fever therapy in 56 of the tabetic, paretic, and asymptomatic neurosyphilis patients studied indicated that this method was only moderately beneficial.

Some patients showed a gain in weight following penicillin therapy and reduction of severity and frequency of pain in the legs, but the crisp type of improvement that occurs following malarial therapy was not observed in this group. However, the authors were impressed by the fact that improvement following administration of penicillin comes within 2 or 3 months after treatment, while improvement following malarial therapy may not be fully manifested for 2 or 3 years.

Further observation and study of the divergence of the clinical and serologic results are recommended. The return of the cell count, protein, and colloidal gold curve to within normal limits is observed constantly, but it is not accompanied in the majority of cases by a corresponding degree of clinical improvement.

J. INDIAN M. A., CALCUTTA

Health services of the Soviet Union. (VD prophylaxis and control.) R. S. Saxton. 15 : 53–55, Nov. 1945.

Our impressions of sulphathiazole. T. K. Dayalu and S. S. Jayram. 15 : 118–119, Jan. 1946.

Sulfonamides in ophthalmic practice. C. N. Sroff. 15 : 151–153, 155, Feb. 1946.

J. ROY. ARMY M. CORPS, LONDON

Penicillin in 100 cases of early syphilis. G. O. Mayne. 86 : 38–41, Jan. 1946.

J. SOCIAL HYG., NEW YORK

September 1939—September 1945. (Editorial on venereal disease progress.) 31 : 401–402, Oct. 1945.

National Social Hygiene Day—1946. (Editorial) 31 : 402–406, Oct. 1945.

Social hygiene gets down to the grass roots. An account of the first year of a neighborhood campaign for venereal disease education in the city of St. Louis, Missouri. Harriet S. Cory and Josephine M. Brown. 31 : 407–419, Oct. 1945.

Three Virginia cities move forward. Social hygiene programs in Norfolk, Lynchburg and Danville-Pittsylvania County. 31 : 420–435, Oct. 1945.

Civilian committees on venereal disease control—a progress note. Morris Leider. 31 : 441–448, Oct. 1945.

Health education in action. A joint community education program in Hartford, Connecticut. Muriel F. Bliss, Gloria H. Cheplin and Alma M. Jackson. 31 : 449–454, Oct. 1945.

Social hygiene citizen groups. Voluntary and semi-official agencies, including societies, councils and committees in the States, communities and island possessions. 31 : 463–478, Oct. 1945.

*The war against prostitution must go on. A report on the current status of commercialized prostitution. 31 : 500–507, Nov. 1945.

Our strength is in united action. A report on progress in social protection in the States and communities with suggestions for more effective cooperation among agencies concerned. Thomas Devine. 31 : 508–514, Nov. 1945.

The venereal disease heritage of World War II. A Navy view of demobilization and postwar venereal disease and social hygiene problems. John W. Ferree and Howard Ennes. 31 : 515–529, Nov. 1945.

*Current Army venereal disease rates. Thomas H. Sternberg and Ernest B. Howard. 31 : 530–533, Nov. 1945.

*Education for case-finding. Judson Hardy. 31 : 539–543, Nov. 1945.

Venereal disease control by New York City Health Department in relation to cooperation with the Armed Forces. Theodore Rosenthal and George Kerchner. 32 : 3–12, Jan. 1946.

Venereal diseases and workmen's compensation. Jacob A. Goldberg. 32 : 13–17, Jan. 1946.

The war against prostitution must go on. A report on the current status of commercialized prostitution.—This article, prepared by the staff of the American Social Hygiene Association, describes the efforts and results of wartime control of the prostitution business, and the conditions to be expected in the postwar management of the situation.

The authors describe the boom conditions in the prostitution racket which followed the construction of Army camps and bases in various parts of the country, with the patronage of nearby resorts by construction workers and by the Armed Forces. Wartime controls of prostitution began in 1940 with the meeting of Army, Navy, Public Health Service, and American Social Hygiene Association representatives, when measures for the control of venereal disease and prostitution were adopted covering regions in which the Armed Forces or national defense employees were concentrated. In 1941, the May Act was passed prohibiting prostitution within distances of Army or Navy establishments to be designated by the Secretaries of War or Navy. As a result of this program, definite improvement in unsatisfactory conditions was evident by the end of 1941, with the reduction of prostitution activities to an all-time low at the end of the first quarter of 1945.

Immediately after VE-day, however, relaxed law enforcement was discernible, with increasingly unfavorable conditions developing in many communities. Racketeers are often backed by uninformed and ill-advised citizenry who, with their mistaken beliefs that segregation, periodic health examinations, and fingerprinting of prostitutes will solve the problem, hinder venereal disease control measures.

The importance of strict law enforcement in the reduction of prostitution and the venereal disease problem is emphasized, and the necessity for continued repressive activities by State and Federal agencies is stressed.

Current Army venereal disease rates.—This article comments on the sharp rise in venereal disease rates in the European Theater of Operations which took place after VE-Day, in the Pacific area as fighting diminished, and in the United States, where a similar rise is expected during the next 6 to 12 months.

The venereal disease control program of the Army, during wartime, encompassed discipline, compulsory educational procedures, provision of prophylaxis, isolation and treatment of infected soldiers, and furnishing of contact information to civilian health agencies.

At all Army Separation Centers, soldiers are examined for evidence of venereal disease within 48 hours of release, and those found to be infectious are retained and treated until cured or rendered noninfectious. A blood serologic examination is performed on all soldiers during the final physical examination, and the results passed on to the U. S. Public Health Service, which in turn notifies the appropriate State health departments as to the need for further diagnostic procedure.

During the next year, the responsibilities for venereal disease control will pass from the military to the civilian authorities. The return to civilian life of over 12,000,000 men in the age group with the highest expected incidence of venereal disease (ages 18 to 38), will markedly increase the duties of civilian health departments. Fortunately, however, also demobilized will be a large number of medical officers and enlisted men trained in venereal disease control who will be available to the civilian health authorities in the expansion of their programs.

Education for case-finding.—In a consideration of the need for improved and intensified case finding in conjunction with the newer treatment methods of venereal disease, the author discusses the following aspects of venereal disease education:

Public relations.—Health agencies are more able to secure the necessary appropriations and cooperation of public and private agencies if there is widespread appreciation of the objectives of venereal disease control, as demonstrated by the statistical, scientific, and social welfare aspects of syphilis and gonorrhea. Public relations also involves such factors as the location and appearance of the clinic and the attitude of its staff toward the patients treated therein.

Case finding.—Voluntary reporting to the clinic, the most satisfactory method of case finding, reduces further spread of infection and increases the chance for successful treatment. The health department education program may afford the motivation for voluntary reporting by making known to the individual the mode of spread, symptoms, and the opportunities available for the diagnosis and treatment of infection. Person-to-person investigation and mass diagnostic surveys also depend heavily on the education of individuals and of the community.

Case holding.—The amount and quality of venereal disease education provided during diagnosis and therapy definitely influence the degree to which patients with early syphilis continue their treatment. Even though shortened treatment schedules have lessened the problem of case holding, patient education and patient relations remain an important factor.

Prevention.—The repression of prostitution and the reduction of promiscuity, both necessary in venereal disease control, are a result of community demand, which is based on education of the public. Prevention of infection by prophylaxis, a personal matter impossible to regulate by law, becomes a process of individual patient education by physicians in clinics and private practice.

The effectiveness of case finding has been demonstrated in the blood-testing surveys of various communities. In New

Orleans, for example, more cases of gonorrhea were brought to clinics and rapid treatment centers in 45 days than would normally have been treated over a period of 2 years. In all communities it was found that mass serologic case finding was made more effective when preceded and accompanied by public education.

The educational phase of venereal disease control requires that the average health department maintain 1 person responsible for the detailed planning, and much of the execution of a consistent and vigorous educational program completely integrated with every other aspect of the control process, and that a sufficient number of case finders be trained for service where venereal disease problems actually exist.

M. ANN. DISTRICT OF COLUMBIA, WASHINGTON
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M. REC., RUTHERFORD
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M. WOMAN'S J., CINCINNATI
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MAINE HEALTH NOTES, AUGUSTA
- What to do? (Attitudes toward VD.) 2 : 1–2, Mar. 1946.

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- Titered serological tests for syphilis. C. A. Perry. 17 : 93–94, Jan. 1946.
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NEW ORLEANS M. & S. J., NEW ORLEANS
- Health of Louisiana. (Annual report of VD.) 98 : 430, Mar. 1946.

NEW YORK STATE J. MED., NEW YORK
- *Acute syphilitic nephrosis treated with penicillin. Delavan V. Holman and Irwin H. Makovsky. 46 : 520–522, Mar. 1, 1946
- Oral penicillin. Conferences on therapy. Departments of Pharmacology and Medicine, Cornell University Medical College and the New York Hospital. 46 : 527–534, Mar. 1, 1946.
- Community aspects of venereal-disease control in Harlem. Gerald A. Spencer and Roger F. Gordon. 46 : 611–613, Mar. 15, 1946.
- Observations of penicillin therapy in gonorrhea. Jacob Frumkin and Robert J. Ruark. 46 : 619–621, Mar. 15, 1946.

Acute syphilitic nephrosis treated with penicillin.—The literature is reviewed and the authors present a case of acute syphilitic nephrosis in which the spirocheticidal action of penicillin was tested and the natural process of recovery in acute nephrosis was observed.

A 23-year-old Negro male was admitted having facial swelling, loss of appetite, nausea and vomiting, dizziness, and paraumbilical pain present for 2 days. Past history included an attack of gonorrheal urethritis 1 year previously, which was presumed to have been treated successfully. Present exposure occurred 35 days before illness.

Physical examination revealed severe typical syphilitic condylomas present on the scrotum and penis, and a moderate generalized lymphadenopathy. Total blood plasma proteins were reduced, albumin relatively more so than globulin. A blood Kahn test was positive. The patient received a total of 2,400,000 units of penicillin intramuscularly. The effect of treatment was first apparent on the fluid balance. Diuresis reached its maximum on the sixth day of treatment and 13 pounds of body weight were lost. Albuminuria cleared promptly. The urine was free of albumin after the fifth day of treatment and total plasma proteins were within the normal range. The clinical recovery was uneventful except for an early, mild febrile reaction. The patient was discharged in his third hospital week, the nephrosis apparently cured.

Diagnosis criteria for nephrosis are given as subcutaneous edema with gross proteinuria and critically reduced plasma proteins in the absence of hypertension, hematura, anemia, significant cardiovascular findings, blood cholesterol elevation, lowered basal metabolism, and the presence of lipoid bodies in the urinary sediment. The authors state that because penicillin has a negligible host reaction it has special advantages in the treatment of syphilis complicated by nephrosis, and that nephrotoxic antisyphilitic drugs are contraindicated when penicillin is available.

NORTH CAROLINA HEALTH BULL., RALEIGH
1946 public health objectives (including VD control). Carl V. Reynolds. 61: 3–5, Feb. 1946.
Venereal disease control in North Carolina. W. D. Hazelhurst. 61: 5–6, Mar. 1946.

NORTHWEST MED., SEATTLE
Pelvic inflammatory disease and penicillin. Albert F. Lee. 45: 246–248, Apr. 1946.

NOVA SCOTIA M. BULL., HALIFAX
Examination of cerebrospinal fluid in syphilis. V. D. Briefs. 25: 72, Feb. 1946.
Gonorrheal cervicitis and trichomonas vaginalis. Murray M. Davis. 25: 89–97, Mar. 1946.
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OHIO STATE M. J., COLUMBUS
Prophylaxis against venereal disease. Harry Wain. 42: 256–258, Mar. 1946.

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Lepra e sifilis. Leprides sifilóides e sifilides lepróides. [Leprosy and syphilis.] N. S. Campos and P. R. Souza. 13: 77–94, June 1945.

REV. CHILENA DE PEDIAT., SANTIAGO
Penicillin in gonococcic vulvovaginitis in young girls. W. Bustamante E. 16: 1071, Nov. 1945.

SC. NEWS LETT., WASHINGTON
Syphilis is long fight. 49: 199, Mar. 30, 1946.
Penicillin is better than streptomycin for syphilis. 49: 214, Apr. 6, 1946.
Synthesizing penicillin. 49: 219, Apr. 6, 1946.
Penicillin (fractions) and syphilis. 49: 277, May 4, 1946.

SCHWEIZ. MED. WCHNSCHR., BASEL
Penicillinresistenz in der Gonorrhoebehandlung. [Resistance to penicillin in the treatment of gonorrhea.] J. von Deschwanden. 74: 1319–1320, Dec. 23, 1944.

SOUTH AFRICAN M. J., CAPE TOWN
Primary syphilis of the hand resulting from trauma sustained on striking an infected subject: A report of four cases. B. Sieff. 20: 114–115, Mar. 9, 1946.

TEXAS STATE J. MED., FORT WORTH
A blood test campaign in San Antonio. News. 41: 675, Apr. 1946.

U. S. NAV. M. BULL., WASHINGTON
Aggravation of bacterids by penicillin with a theory as to causation. John A. Heinlein, Cedric C. Carpenter and Benedict J. Duffy, Jr. 46: 571–575, Apr. 1946.
Pinta-like lesions among natives of Guam. Ralph F. Allen and Raymond H. Goodale. 46: 653–662, May 1946.
Penicillin reaction. Report of a case. Louis H. Krauel. 46: 749–750, May 1946.

VD TOPICS, CHICAGO
Clinic serves courts. 2: Jan.-Mar. 1946.
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VIRGINIA DEPT. HEALTH BULL., RICHMOND
Syphilitic treatment. 10: 1, Apr. 1946.

VIRGINIA M. MONTHLY, RICHMOND
Venereal disease as soldiers return. Mason Romaine and W. E. Chapin. 73: 151–152, Apr. 1946.
*Biologic false positive serologic tests for syphilis: a study of 100 cases. Sidney G. Page, Jr., and Leonard L. Heimoff. 73: 153–159, Apr. 1946.

Biologic false positive serologic tests for syphilis: a study of 100 cases.—The literature is reviewed in this report involving 100 patients at a Station Hospital who had doubtful or positive serologic tests for syphilis. The authors divide this series into 2 groups: group A, those caused by diseases, including respiratory diseases, infectious diseases, and other febrile diseases; and group B, those caused by immunization, including tetanus toxoid, smallpox, and the combination of tetanus toxoid and smallpox vaccinations. The common cold as a cause of biologic false positive serologic tests is discussed.

Among this group, biologic false positive serologic tests for syphilis were exhibited by 1 case of primary atypical pneumonia, 1 case of infectious mononucleosis, 20 cases of vivax malaria, 1 case of inguinal adenitis, 17 cases of tetanus toxoid, 2 cases of smallpox vaccination, and 10 instances of both tetanus toxoid and smallpox vaccination.

Typical case histories are presented.

The following procedures are given for suspected biologic false positive serologic tests for syphilis: (1) take a careful history for syphilis, (2) make a careful physical examination, (3) examine the blood for malaria and infectious mononucleosis by blood smears and heterophile agglutination tests, (4) repeat serologic test at intervals and use quantitative flocculation test, and (5) employ verification tests.

WEST VIRGINIA M. J., CHARLESTON

A concise pharmacology of the antibiotic agents. David Fielding Marsh. 42: 89–95, Apr. 1946.

WISCONSIN M. J., MADISON

Medical aspects of marriage laws. 45: 86–88, Jan. 1946.

State Board of Health, services, laws, and rulings. (Wisconsin) Communicable diseases. 45: 91–96, Jan. 1946.

Clinical examination of the cerebrospinal fluid. An outline. H. Houston Merritt and Charles Brenner. 45: 303–321, Mar. 1946.

Benzyl penicillin. Comments on treatment. Harry Beckman. 45: 407, Apr. 1946.

Cases of Syphilis and Gonorrhea Reported for the First Time in States, Territories, and Possessions for the First 3 Months of Year 1946

Area	Syphilis										Gonorrhea	
	Total [1]		Primary and secondary		Early latent		Late and late latent		Congenital			
	Mar.	Jan.-Mar.	Mar.	Jan.-Mar.	Mar.	Jan.-Mar.	Mar.	Jan.-Mar.	Mar.	Jan.-Mar.	Mar.	Jan.-Mar.
Alabama	1,146	3,019	307	729	346	853	219	423	27	72	1,283	3,155
Arizona	136	449	46	176	55	136	30	116	5	21	146	381
Arkansas	1,057	2,783	247	644	393	1,039	364	972	53	126	621	1,878
California	1,972	6,171	479	1,463	583	1,779	807	2,605	64	184	2,421	7,650
Colorado	278	727	96	264	83	204	89	230	10	29	215	621
Connecticut	182	521	43	116	35	97	74	226	7	21	129	325
Delaware	41	188	16	42	16	44	5	16	------	4	14	52
District Columbia	245	687	71	198	91	263	73	179	1	13	731	1,865
Florida	1,413	3,439	308	764	646	1,449	352	912	42	95	1,449	3,952
Georgia [4]	------	------	------	------	------	------	------	------	------	------	------	------
Idaho	55	173	12	45	15	35	16	55	2	4	64	138
Illinois	2,407	6,284	635	1,681	727	1,922	985	2,510	60	171	3,499	9,332
Indiana	577	1,522	98	343	97	229	182	502	16	42	286	879
Iowa	179	455	61	172	61	128	42	113	3	11	193	565
Kansas	163	436	52	146	46	118	60	161	5	11	257	725
Kentucky	710	1,911	375	901	182	494	131	333	22	63	777	2,295
Louisiana	1,695	4,399	465	1,190	427	1,228	250	626	69	165	1,432	3,614
Maine	92	198	51	112	9	20	24	50	6	11	118	298
Maryland	723	2,028	211	597	163	470	142	424	13	37	426	1,360
Massachusetts	472	1,543	185	655	------	------	268	830	19	58	391	1,409
Michigan	1,476	4,265	389	1,174	363	1,045	491	1,384	27	105	1,026	3,370
Minnesota	170	379	62	133	23	55	67	153	7	13	193	599
Mississippi	2,247	6,360	833	2,284	743	2,074	579	1,733	92	269	3,804	10,780
Missouri	1,122	3,018	277	786	450	1,154	363	974	25	70	681	2,148
Montana	34	88	11	30	------	13	13	19	------	------	29	95
Nebraska	279	502	58	130	80	162	73	133	10	15	165	428
Nevada	41	135	6	23	------	------	14	53	1	4	21	69
New Hampshire	16	60	2	13	5	12	8	31	1	4	36	126
New Jersey	778	2,425	163	473	267	825	323	1,053	23	64	389	1,267
New Mexico	200	374	50	87	60	113	79	159	11	15	193	400
New York	3,245	9,227	701	2,026	905	2,480	1,529	4,423	85	235	[2] 2,207	[2] 5,724
North Carolina	917	2,330	398	1,051	344	856	131	314	44	109	1,349	3,431
North Dakota	29	98	11	45	5	15	10	22	1	2	74	220
Ohio	1,889	4,951	577	1,506	547	1,517	639	1,711	65	156	680	2,033
Oklahoma	636	1,694	152	364	214	568	171	434	37	90	713	2,244
Oregon	159	343	45	99	23	50	71	159	3	5	193	595
Pennsylvania	1,462	3,257	286	705	475	1,073	507	1,102	69	183	[3] 426	[3] 1,121
Rhode Island	109	319	26	102	8	26	56	131	7	16	37	139
South Carolina	789	1,752	322	675	244	571	165	359	34	83	1,147	2,665
South Dakota	38	93	19	40	7	17	10	33	2	3	61	178
Tennessee	1,499	3,747	435	1,108	531	1,387	504	1,171	25	66	2,317	5,893
Texas	1,133	2,752	357	892	435	1,107	226	566	45	113	1,277	3,684
Utah	101	157	27	54	16	30	55	70	3	3	73	154
Vermont	34	68	14	28	7	10	11	25	2	4	38	102
Virginia	1,281	3,028	341	826	531	1,271	370	838	26	69	1,334	3,253
Washington	246	737	88	192	41	191	94	284	10	19	374	1,170
West Virginia	806	1,922	377	1,027	195	433	187	376	18	54	899	2,396
Wisconsin	257	717	40	157	52	148	140	351	------	6	131	450
Wyoming	31	75	8	22	5	20	14	28	------	------	43	76
Total United States	34,567	91,806	9,833	26,290	10,551	27,731	11,013	29,372	1,097	2,913	34,362	95,304
Alaska	10	40	------	3	5	12	3	16	1	4	39	167
Canal Zone	29	90	7	17	4	22	16	44	------	2	75	208
Hawaii	114	234	5	13	11	17	89	180	9	23	47	133
Puerto Rico	948	2,482	131	314	323	904	261	647	229	611	404	1,383
Virgin Islands	7	23	------	1	7	17	------	4	------	1	16	69
Total United States and Possessions	35,675	94,675	9,976	26,638	10,901	28,703	11,382	30,263	1,336	3,554	34,943	97,264

[1] Includes "not stated."

[2] New York City only.

[3] Philadelphia only.

[4] No report for March.

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Pennsylvania
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THOMAS PARRAN, *Surgeon General*

Editor: J. R. HELLER, Jr., *Medical Director*
Chief, Venereal Disease Division

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Editorial

An important prerequisite to the effective control of any disease is nowledge of its extent. In acute diseases of short duration, this requires n estimation of the incidence or frequency with which new cases occur ver a given period. In diseases characterized by a more prolonged course, uch as syphilis, it is necessary to know, in addition, the prevalence or the ersons who are currently infected at any given time.

The true prevalence of syphilis in any very large population group has ot been determined with exactness. It is rarely possible to make a comlete clinical examination and laboratory test of every individual in the hole population under study. The methods commonly used are either o examine a given portion of the population and compute the total prevaence from the results obtained in the fraction examined, or to count the ositive diagnoses made routinely throughout the whole population over given period of time.

When the first method is employed, errors arise from the fact that it is ever possible to obtain a sample which is identical in all respects to the otal population. Furthermore, in most attempts to examine a large ample of a selected population group within a short space of time, it is impossible to persuade everyone to submit to examinations. Thus the uestion arises: By how much does the proportion found positive in those who submitted to testing differ from the proportion that would have given a positive diagnosis among those who refused?

Still another difficulty is inherent in the sampling method wherein the problem is to determine whether there is a change in the proportion of people infected at one time as compared to another. For example, if samples are taken from the same population groups at different times, the changing character of the population sampled constitutes a fairly important and largely unmeasurable source of error.

When the second method is employed (that of estimating prevalence from all the routinely discovered positive cases), a basic source of error exists in the fact that the course of the disease may be so mild that an infected individual may never be aware of having syphilis. Further, many infected persons do not seek medical care even though aware of infection.

As is suggested by one of the original articles in this issue, the problem of estimating incidence is further complicated by the widening use of intensive treatment methods in syphilis control programs. The question of whether a patient with a positive diagnosis and a history of having recently undergone presumably adequate intensive therapy is to be considered as newly infected or as relapsed is a vexing problem indeed. New methods or more discriminating application of old methods and criteria for determining relapse should be explored at every opportunity if we are to increase our knowledge both of the efficacy of the new treatment methods and of the incidence and prevalence of the disease.

Preliminary Report on the San Antonio Blood Test Campaign

Lewis C. Robbins, Senior Assistant Surgeon[1] and Walter S. Green, Senior Assistan Surgeon (R),[2] United States Public Health Service

Stimulated by the example of the Birmingham, Ala., blood testing program, the San Antonio, Tex., Venereal Disease Control Committee decided in the autumn of 1945 to promote a city-wide campaign against syphilis. The Venereal Disease Control Committee was organized early in the course of the war and includes representatives from numerous public and private health, welfare, civic, educational, professional, law enforcement, religious, racial, and other groups and organizations.

Having gained the endorsement of the campaign by the Bexar County Medical Society, an educational program was planned to begin in January 1946, to be followed in February by free blood testing of volunteers.

Funds for the program were obtained by popular subscription through the efforts of the Junior Chamber of Commerce and by a grant from City Health Department funds. The State Health Department, The American Social Hygiene Association, and the U. S. Public Health Service aided also by furnishing special literature, motion picture films, and poster material. The State Health Officer also provided a trailer for use as a mobile blood-drawing unit, motion picture projectors, laboratory equipment, and the services of two laboratory technicians and two health educators. The Venereal Disease Control Officer of the City Health Department gave virtually full time to administering the plan.

The first active step was to enlist the cooperation of physicians and other key groups. Letters were relied on principally. Of 185 physicians thus approached through the Bexar Count Medical Society, 74 replied stating wil ingness to participate through perforn ing free blood tests on their patient during the campaign. Requested quar tities of serially numbered test tube and specially prepared placards for di play in reception rooms were furnishe these cooperating physicians. To co lect these blood specimens, 6 conver iently located "stations" were estal lished in pharmacies. Collections fron the stations were made twice daily b a health department representative. total of 1,475 specimens was collecte from physicians through this procedur

The Chamber of Commerce sent letter to all employers of 25 or more persor in San Antonio, inviting their cooper tion in the campaign. Seventy inte ested employers arranged appointmen for blood drawing teams to visit the establishments for the blood testing c volunteers among their employees. total of 5,981 employees was teste through this arrangement.

Fifteen thousand informative letter were distributed by the Parent-Teach ers Association Council to parents of hig school and junior high school student A parental consent card was attached t each letter for the signature of parent who desired to have their children teste As a result, over half the high scho and junior high school students in Sa Antonio were blood tested. Selected v nereal disease educational films wer shown in all the high schools and lecture presented in four of them. The parochia schools and two colleges also participate in the blood testing.

During January, emphasis was place on the educational program which i cluded meetings with civic organiz tions, service clubs, church group parent-teachers associations, and en loyee groups. The meetings featured physician speaker (either a member the City Health Department or of the eakers' bureau of the County Medical ociety), a motion picture, the distribu-on of literature, and blood testing of lunteers from the audience. A total 56 education meetings was held, one-urth of which were at night, with a tal attendance of about 3,000.

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[1] Director of Public Health, San Antonio, Tex., City Health Department.

[2] Chief, Division of Venereal Disease Control. San Antonio, Tex., City Health Department.

As a result of the wholehearted co-peration given by racial and foreign nguage groups, it was possible to carry ut special programs in their communi-es, including the door-to-door can-assing of settlements and housing proj-cts. A special representative loaned by he American Social Hygiene Association ssisted significantly in promoting the rogram in Negro communities.

As the city-wide mass blood testing rogram began, during the first week of ebruary, 200 large and colorful signs dvising San Antonians to "Get a Blood est For Syphilis" were erected on lamp osts of the main streets. Eleven huge illboards, over eight thousand small osters in shop windows, and one hun-red thousand special pamphlets re-embling a tabloid newspaper were uti-zed. The "tabloids" were delivered rom door to door by volunteers from civic rganizations.

The newspapers—the 3 daily, 2 Spanish nd 2 Negro—gave the campaign valuable ublicity through news articles and hotos. Educational releases, including implified discussions of the biologic alse positive reactions, diagnosis, and reatment of syphilis were frequently ublished, as were articles giving the ocation of the test stations or empha-izing that the blood tests were free and onfidential. Especially prepared plac-rds were carried by 200 buses and umerous commercial vehicles. Four adio stations broadcast spot announce-nents and 8 chain theaters ran "trail-rs"—including 1 in Spanish—spreading he news of the campaign.

Three full time blood drawing stations vere in operation throughout February n the lobbies of important office build-ngs. Twelve part time stations operated at community centers in outlying districts. The mobile unit assisted in servicing settlements, housing projects, industrial plants, and the remote residential centers. The part time stations were staffed by at least 1 nurse and a volunteer clerk. Two nurses were loaned by the regional Army medical corps, and several volunteered to work a few hours each week. Nineteen nurses were City Health Department employees, 3 of whom were assigned to the campaign on a full time basis, while the balance devoted only part of their time while carrying on other duties.

The handling of the blood tests was patterned in many respects after the methods of the Birmingham campaign,[3] as was the "production line" processing of blood specimens at the City Health Department laboratory. The peak load for a single day during the campaign was 2,286 specimens, and the average daily load was 1,096 specimens. All specimens were subjected to the Kline exclusion test. The Mazzini test was then used on those specimens which gave positive findings. Only the Mazzini positives and doubtfuls were reported. Subsequent tests made on specimens from those positive cases included the Kolmer and quantitative Kahn tests. Civilian employees at military establishments had their blood tests performed by medical and laboratory facilities where they worked. Blood tests made on patients and employees at 3 large private hospitals were processed within these institutions and itemized in the campaign totals.

Over 90 percent of the persons blood tested requested notification by mail. These individuals were advised that if they did not receive notification within a week they could assume that the test was negative. Individuals with positive tests and those under age 60 with doubtful tests received a letter advising them to consult a private physician or the City Health Department at once for further examination.

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[3] Smith, W. H. Y.; Denison, G. A.: Blood testing and treatment program in Jefferson County, Alabama. J. Ven. Dis. Inform., 27: 94–103, 1946.

Individual follow-up on persons with positive or doubtful tests was not done, it being decided at the outset to rely on the educational program to motivate the individual to seek further diagnosis and treatment. Those who consulted the City Health Department and who could afford to pay for medical care were referred to their private physicians. Cases of early syphilis were referred to the rapid treatment facility; those in the later stages were provided with routine therapy at the City Health Department.

At the time of preparing this report (Apr. 8, 1946), 93 new patients were thus placed under treatment at the City Health Department. This group is composed of 53 cases of late latent syphilis, 7 of cardiovascular syphilis, 2 of neurosyphilis, 22 of early latent syphilis, 8 of secondary syphilis, and 1 of primary syphilis. In addition to the above, there were 176 individuals with positive or doubtful reports as yet undiagnosed and 32 cases diagnosed as nonsyphilitic. In this group of 301 patients only 3 were found to have gonorrhea. Data are not yet available on the number who had consulted private physicians.

As indicated in table 1, the Negro group led in the percentage of positives with 14.4 percent, followed by the Latin-Americans with 6.2 percent and the Anglo-Americans with 2.0 percent. A higher percentage of Negro and Latin-American volunteers were blood tested than Anglo-Americans, possibly because of the special emphasis placed on the program for the former groups. Twenty-three orientals, aged 10 to 20 years, who were blood tested in the campaign were all negative.

TABLE 1

Population figures for San Antonio. (Total population 350,000)	Percent blood tested in campaign*	Percent positive*	Percent doubtful*
Anglo-American (58%) 203,000	6.2	2.0	0.7
Latin-American (35%) 122,500	10.0	6.2	2.0
Negro (7%) 24,500	10.9	14.4	4.1

*Based on 27,480 cases analyzed.

A total of 40,573 persons was bloo tested in the campaign. However, fu data are available for only 27,480 an our tables are based on this group onl Of these 27,480 specimens, 1,841 (6.7 pe cent) were positive or doubtful (tab 2). The highest percentage (11.6 pe cent) of the 1,841 positive or doubtf tests occurred in the age group 50–6 years. Only 1.7 percent of the high-schoo age group (15 to 17 years) were positi or doubtful.

A total cost of the campaign, not i cluding the normal operational costs the City Health Department and the m terials, services, and personnel loaned the cooperating agencies, was $5,32 (table 3). On this basis the cost of t 40,573 specimens tested was 13.1 cen per specimen.

TABLE 2.—*Campaign blood test results*
age groups

Age	Number of cases tested	Positive and doubtful	
		Number	Per- cent
Under 10	135	2	1
10–14	4,674	63	1
15–17	4,203	71	1
18–20	2,186	90	4
21–24	2,597	174	6
25–29	2,586	213	8
30–34	2,505	230	9
35–39	2,249	247	11
40–49	3,295	378	11
50–60	1,956	227	11
Over 60	740	110	1
Not stated	354	36	10
Total	27,480	1,841	6

The dollar value of the donate materials and services plus the norm operational cost for all activities co nected with blood testing in the Cit Health Department is estimated to about $7,695. This figure would bri the total cost to about $13,020, or abo 32.1 cents per specimen.

CONCLUSIONS

The number of cases of infectio syphilis found directly by the blood tes ing campaign is not impressive. Ho ever, the patient load for syphilis, and f gonorrhea as well, at the City Clinic i

TABLE 3.—*Campaign expenses*

SALARIES Director of education, two nurses, one laboratory technician, four clerks, and two dishwashers.	$2, 879. 42
TABLOID 100,000 copies.	555. 89
MISCELLANEOUS PUBLICITY MATERIALS Placards, blood test station signs, transcription, eight movie "trailers," and Alamo Plaza "thermometer" display.	390. 00
SUPPLIES AND INCIDENTAL EXPENSES Clip needles, stationery, stamps, multigraphing, printing, and repainting sections on street posters.	1, 500. 00
Total	5, 325. 31

creased to its highest level during and since the campaign. For the year 1945, the average number of new admissions per month for syphilis was 91, and the total for all venereal diseases was 273. During the 3-month period succeeding the campaign, the average number of new admissions per month for syphilis rose to 158, and the total for all venereal diseases was 321. For the same 3-month period in 1945, these same averages were only 83 and 226, respectively. It is our conclusion that when reliance is placed on voluntary mass blood testing, promiscuous persons, particularly those who suspect that they are infected and those who are difficult to reach by ordinary mass educational methods, cannot be expected to volunteer for blood testing in large numbers.

The extensive health education accomplished by the campaign probably constitutes its most noteworthy achievement. Medical as well as lay persons in San Antonio appear to appreciate more fully the importance of a serologic test for syphilis as a part of the complete medical examination. Several business firms have indicated their intention to perform periodic blood tests on their employees. The need for blood tests before marriage and early in pregnancy appears to have made a very strong public impression, which may influence further legislation in this direction. Our experiences suggest that the blood testing aspects of the campaign would have been more successful if the preliminary education had been conducted with full intensity for at least 3 additional weeks.

So far as we are aware, there was no opposition and little indifference to the project. Cooperation and enthusiastic endorsements were met with on every side. The Protestant, Catholic, and Jewish church groups, the medical society, the labor unions, the service clubs, and the civic organizations not only supported the program publicly but also participated in it. This was unquestionably due to the careful and complete advance discussion with the various groups involved.

The prominent role played by volunteer workers and the over-all effectiveness of their participation in the campaign proves the value of this type of cooperation in health education. Briefly but carefully coached for specifically defined functions, they will do their utmost to serve well, especially when given encouragement and credit. They are not "outsiders" but residents with civic pride who become anxious to perpetuate the program in which they have participated. This should prove especially valuable when an educational program such as this is continued on a long-range basis.

The shortage of full time personnel, especially nurses for blood drawing, was felt acutely throughout the campaign. It was believed that if given twice as many nurses, twice as many blood specimens could have been drawn.

A Study of Syphilis in a Negro High School in the City of Baltimore, 1939–1943[1]

Edwin N. Hesbacher, Surgeon, United States Public Health Service

The serologic survey has come into wide use as a method for measuring the prevalence of syphilis in selected groups of the population. In has the defect that it can detect only those infections which are seropositive at the moment of the collection of the specimens, and it does not disclose the age of any infection. It is a measure only of the prevalence of serologically detectable syphilis. Its accuracy as a measure of the trend of infection in a population depends, among other things, upon the relative sensitivity and specificity of the tests used in successive surveys, and upon the probability that serologically detectable syphilis has accumulated in the same ratio in each intervening period.

The rapid treatment of early syphilis usually causes prompt reversal to seronegativity. Seroreversals are much slower and much less frequent under the older schemes of therapy. Thus, as rapid treatment becomes more widely used, there will be less and less accumulation of serologically detectable infections, even though there may have been no change in the attack rate. Hence, an apparent decline in the serologically measurable prevalence of syphilis may have no significance as a measure of the trend of infection in a population. Until the rate of accumulation of serologically detectable infections becomes stabilized, serologic surveys may no longer serve to measure the trend of infection in a population.

Another method has been proposed for measuring the accumulation of infections by accumulating the discovery or attack rates. This is accomplished by including in prevalence all those infections which can be discovered to have occurred, whether or not they are serologically detectable at the time of the serologic survey (*1*, *2*). This method tends to include, as still existing, many infections which actually have been cured. This will be more and more the case as rapid treatment methods come into wider use. Hence, they may give to prevalence a significance not ordinarily applied to this term, one which may not be justified by the facts.

This study makes use of the serologic survey as a measure of the prevalence of syphilis in students in a high school and considers its potential usefulness, in this particular situation, as a measure of the trend of infection in this and in the general population. It is assumed, for lack of evidence either for or against, that the serologic efficiency of the laboratories involved remained the same throughout the period covered by the study. Since rapid treatment schemes were not in significant use until the very end of the study period, it is assumed that the rate of accumulation of serologically detectable infections has remained constant throughout the study period.

The study aims, also, to determine the attack rate for the period covered, by determining the subsequent occurrence of new infections in a group of students known to have had negative serologic tests for syphilis at the beginning of the period.

THE FIRST SURVEY

In 1939, a serologic survey was made of the students in a Negro high school in the Eastern Health District of Baltimore (*3*). There were 1,539 students enrolled, distributed among grades 7–B to 11–A, inclusive. Serologic tests were offered to the students on a voluntary basis, written permission to make the test being

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From the Syphilis Study of the School of Hygiene and Public Health, the Johns Hopkins University. The Syphilis Study is supported by a grant from the International Health Division of the Rockefeller Foundation.

[1] Based on material submitted in conformance to the requirements of the degree of Doctor of Public Health.

required of the parents or guardians.

The response was fairly good, 77.2 percent of the males and 78.8 percent of the females being tested. Positive tests were obtained in 2.4 percent of the 461 males and in 2.7 percent of the 742 females tested, or in 2.6 percent of the entire tested group (table 1). There were 1,172 students who had negative tests.

THE SECOND SURVEY

In 1943, a second survey was made of the students in this school. At this time there were 1,635 students enrolled, distributed among grades 7–B to 12–A, inclusive. The tests were again offered on a voluntary basis, but the response was not so good as in 1939, only 42.1 percent of the males and 53.2 percent of the females being tested. Positive tests were obtained in 1.5 percent of the males and in 3.1 percent of the females, or in 2.5 percent of the entire tested group (table 1). The difference between these and the corresponding rates for 1939 are within the limits of expected sampling variation.

TABLE 1.—*Enrollment, number, and percent of students tested and number and percent with positive tests, by sex, in 1939 and 1943*

Year of study	Enrolled	Tested		Positive of those tested	
		Number	Percent	Number	Percent
MALE					
1939	597	461	77.2	11	2.4
1943	658	277	42.1	4	1.5
FEMALE					
1939	942	742	78.8	20	2.7
1943	977	520	53.2	16	3.1
TOTAL					
1939	1,539	1,203	78.2	31	2.6
1943	1,635	797	48.7	20	2.5

Age and sex differences in the two groups were corrected by using the 1939 enrollment of 1,539 students as a standard population, to which the rates, by age, among those tested in both years were applied. The rates for the standard population were 2.55 percent at the 1939 rate and 2.58 percent at the 1943 rate. The rates for males were 2.33 and 1.44 percent, and for females 2.7 and 3.3 percent, respectively. These differences are all within the limits of expected sampling variation.

Although there is no significant difference between the rates for the 2 years, the large group of untested students, among whom infection may be present at significantly different rates, makes any definite conclusion as to trend impossible.

The prevalence rate of syphilis in students does not necessarily reflect the prevalence rate of this disease in the community as a whole. Students are a highly selective group of the population. Socioeconomic conditions, intelligence, and probably other factors may determine whether a child is permitted to go to, or remain in school. The school environment may influence sexual behavior much differently from an occupational environment and, on the whole, most students in undergraduate schools have probably not reached the adult average of sexual activity.

On the other hand, the trend of syphilis in students may reflect either the trend of infection in the community or the effect of educational programs in the school (which may not reach or influence the adult population) or both. During the period of this study there had been no special program of venereal disease education in the school or in the district as a whole.

The best that can be said of the results of these two surveys is that there is no statistically detectable difference in the prevalence of syphilis in the students in this school in 1939 and in 1943.

It was found in each survey that one-fourth the students with positive tests had been known, previously, to have syphilis. In each survey, also, one-half the students with positive tests were under 15 years of age, and the majority of these had acquired, rather than congenital infections. This is consistent with the findings of Dyar and Goodwin (*4*), who reported 19 cases of acquired early syphilis in children under 14 years of age, discovered in a 16-month period, from the general area in which the school is located (with a population of approximately 100,000).

THE REEXAMINATION IN 1942–1943[2] OF STUDENTS KNOWN TO HAVE BEEN SEROLOGICALLY NEGATIVE IN 1939

As a result of the serologic survey made in 1939, negative tests were obtained from 1,172 students. The original records of 5 of these had been lost. An attempt was made to determine the incidence of syphilis, from 1939 to 1943, in the 1,167 students (452 males and 715 females) whose original records were available.

To determine the syphilis status, each student was checked against the Master File of the Syphilis Study of the Eastern Health District,[3] the records of the Johns Hopkins Hospital, and the syphilis morbidity and serology files of the Baltimore City Health Department and the school serologic survey of 1943. When the search of these records had been completed, an attempt was made to reach, by letter and home visit, each of the 684 persons for whom no information had otherwise been obtained as of 1942–1943. Data were eventually obtained on 766 students (65.6 percent) for 1942–1943 and on an additional 138 (11.9 percent) for some part of the intervening period, a total of 904 students.

For the purposes of this study, a person was considered to have syphilis if a serologic test was positive, or if the person had been reported to have syphilis A positive syphilis status was credite to the year of discovery and to each suc ceeding year. A negative syphilis statu was credited to the year of the negativ test and to each preceding year. Th syphilis status of the 1,167 students known and unknown, during each of th three periods into which the entire in terval is divided, is shown in table 2.

TABLE 2.—*The syphilis status of 1,167 stu dents in 1940, 1941, and 1942–1943, b sex*

Status	1940		1941		1942–1943	
	Number	Percent	Number	Percent	Number	Percent
MALE						
Positive	2	0.5	3	0.6	12	2.
Negative	329	72.7	313	69.2	270	59.
Unknown	121	26.8	136	30.2	170	37.
Total	452	100.0	452	100.0	452	100.
FEMALE						
Positive	8	1.1	15	2.1	36	5.
Negative	525	73.5	501	70.1	448	62.
Unknown	182	25.4	199	27.8	231	32.
Total	715	100.0	715	100.0	715	100.
TOTAL						
Positive	10	0.9	18	1.5	48	4.
Negative	854	73.2	814	69.8	718	61.
Unknown	303	25.9	335	28.7	401	34.
Total	1,167	100.0	1,167	100.0	1,167	100.

It will be noted that 12 (2.7 percent) of the 452 males and 36 (5.0 percent) of the 715 females, or 48 (4.1 percent) of the 1,167 students, were known to have acquired syphilis at some time during the interval since 1939. The status of 270 (59.7 percent) of the males and 44 (62.7 percent) of the females, or 71 (61.5 percent) of the 1,167 students, was known to be negative in the final period (1942–1943). The status of 401 (34.

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[2] The study was terminated at the end of March 1943, so that the final of the three observation periods covered 15 months.

[3] The Master File is a card index of 55,000 residents of the Eastern Health District. It contains a continuous record of the syphilis status of every resident concerning whom data have been discovered from laboratory and clinic files and miscellaneous other sources.

ercent) of the students was unknown at that time.

Here, again, the large proportion of unknowns makes the results inconclusive. The most that can be said is that these are minimal prevalence rates, for there doubtless are infections among the 401 unknowns which would add to the rate. If it is assumed that the rate of infections among the unknowns is the same as that among the knowns, the rates would have been 4.3 percent for the males, 7.4 percent for the females, and 6.3 percent for the entire group.

The known and unknown groups were similar as to sex and age distribution, but certain other factors may have influenced the findings. Most of the infections in the knowns were discovered by means other than unbiased serologic survey of the entire group. The results, for the knowns, are therefore weighted to that extent and, for the unknowns, may be less than might be assumed. Clark (*1*) demonstrated, for adults, that the prevalence of infection among unknowns, subsequently tested, was considerably lower than among an initial group of knowns. The assumption that the infections are equally distributed may, therefore, produce a prevalence rate which is too high.

On the other hand, a large number of the students had left school before completing their junior high school education. They may have done so because of socioeconomic conditions or scholarship difficulties which would identify them with that part of the population in which the rate of infection is high. The occupational environments to which they went may have had a still further influence on their sexual behavior. If these assumptions are valid, the prevalence of infection among the unknowns may approach, or exceed that among the knowns.

THE PROBABILITY OF ACQUIRING SYPHILIS

Life table technics were used to estimate the probability of acquiring syphilis, according to age, among the 904 students for whom there were two or more observations as to status during the period of the study. The average number at risk during each subperiod was calculated from (1) the number under observation at the beginning of the subperiod, (2) the number withdrawn from observation during the year, and (3) the number discovered to be infected during the year.

It was found, by this method, that no infection occurred among the 904 students between the eleventh and fourteenth years of age, but that by the time the fifteenth birthday was reached, the probability of infection was 16 per thousand of those known to be negative at 11 years of age. Cumulating these probabilities to age 20 years (the highest age at which there was a significant number of observations), it was found that of every thousand students negative at 11 years, 130 may be expected to have become infected by age 20 years.

No infections occurred in the 343 male students between the ages of 11 and 15 years. By the time the sixteenth birthday was reached, however, the probability of infection was 9 per thousand, and by age 20 years the probability was 76 per thousand.

TABLE 3.—*The cumulative probability per 1,000 students of acquiring syphilis between ages 11 and 20 years*

Age	11	12	13	14	15	16	17	18	19	20
Male	0	0	0	0	0	9	18	44	54	76
Female	0	0	0	0	24	39	65	90	124	170
Total	0	0	0	0	16	29	48	74	97	130

No infections occurred in the 561 female students between the ages of 11 and 14 years. By the time the fifteenth birthday was reached, the probability of infection was 24 per thousand (nearly 3 times that for males), and by age 20 years it was 170 per thousand (table 3).

years it was 170 per thousand (table 3).

applied to the entire Negro population of corresponding ages, the students being a highly selective group, they are compatible with the findings in a study (*1*) of the syphilis status of Negroes aged 20 to 24 years in this area in 1939.

This study indicated that, by age 25 years, nearly 23 percent of male and 35 percent of female students had been infected with syphilis.

DISCUSSION

The serologic surveys of this Negro school, in 1939 and 1943, disclose a syphilis problem in this population group not discoverable by most other forms of population group study. Such surveys might be useful as a measure of the trend of infection in student groups, provided a sufficiently large proportion of the students submit to the test and provided there have not been profound changes in the efficiency of the test or in the effect of newer therapies on serology.

Through repeated surveys and the follow-up of each surveyed group, it should be possible to determine the subsequent attack rate and its trend. It might also be determined, through separate study of those who leave school and those who remain to be graduated, whether education has any influence upon the attack rate. There was some indication, in this study, that those who left school prematurely had higher attack rates, but the socioeconomic status and age distribution of the two groups were not determined. These factors may, in themselves, influence the attack rates through their bearing upon sexual behavior.

The relatively small number of infections found would seem to indicate that serologic surveys of high school students would not be practical as a case-finding procedure, although they might very well serve as a basis for introducing venereal disease education and instruction in sex hygiene into the school.

SUMMARY

Two serologic surveys were made of students in a Negro high school. Approximately 3 percent of the students tested were found to be infected. Fifty percent of the students found to have syphilis were under 15 years of age. There was no statistically significant difference between the results of the two surveys.

A 3-year follow-up study was made o the syphilis status of 1,167 students wh were known to have negative serologi tests in 1939. The status of 766 (65. percent) of these was known in the fina study period (1942–1943), and some information subsequent to examination wa obtained for 138 others, or a total of 90 (77.5 percent).

Forty-eight students, 12 males and 3 females, were found to have syphilis The attack rate for the period, as determined by the syphilis status of 766 students in the final study period, was 6. percent for the entire group, 4.3 percen for the boys and 7.4 percent for the girls assuming the same attack rate for the unknowns as for the knowns.

The probability of infection was determined to age 20 years for both sexe and the entire group by life table technics It is high for both sexes, but females are infected at an earlier age than males and at much higher rates (two to three times as high in most of the age groups).

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CURRENT LITERATURE

Note: Abstracts of any article listed below are available on request. In addition, abstracts of all articles concerned with venereal diseases or related subjects which have been published in the better known journals both here and abroad during the past 20 years are in the files. These are open to workers in the field. An asterisk (*) before a title indicates that the article is abstracted below.

ALASKA'S HEALTH, JUNEAU

A world free from syphilis. N. Berneta Block. 4: 2–3, Mar. 1946.

The public health nurse in a venereal disease control program. Dorothy K. Whitney. 4: 6–7, Mar. 1946.

ARCH. DERMAT. & SYPH., CHICAGO

A case for diagnosis (late syphilis). Samuel Ayres, Jr. 53: 155–156, Feb. 1946.

A case for diagnosis (premature gummata?). S. Rothman and A. L. Shapiro. 53: 195–197, Feb. 1946.

CANAD. J. PUB. HEALTH, TORONTO

*Some observations on venereal disease control in the Royal Canadian Air Force. J. W. Tice, A. H. Sellers, R. M. Anderson and W. Nichols. 37: 43–56, Feb. 1946.

Some observations on venereal disease control in the Royal Canadian Air Force.—Venereal disease experience in the RCAF from the beginning of the war to the end of June 1945, the program adopted during 1944, and the findings of a study of data recorded on 4,472 Notification, Contact, and Facilitation Reports submitted to the Air Force headquarters during 1944 are presented and discussed.

The following summary is made by the authors: the incidence of syphilis among male Air Force personnel in Canada has shown a substantial decline during the past 3 years; the incidence of gonorrhea, following an initial decline of about 25 percent during the years 1939–1942, has since failed to show any improvement; the recorded incidence of nonspecific urethritis has risen steadily since reporting began (1943); recent attack rates for syphilis, gonorrhea, and nonspecific urethritis (venereal) have been approximately 1, 18, and 15 per 1,000 strength per annum.

The method of collecting and transmitting information on venereal disease cases is outlined.

Venereal disease decreased progressively with age, and was twice as high among single men as among married men. Little difference in incidence of venereal disease was noted between flying and nonflying personnel. Half the infections occurred while on short-term pass.

In almost two-thirds of the cases, the individual reported to a medical officer within the day following the appearance of symptoms of infection. Only 2.5 percent of the 100 cases received treatment from nonmilitary sources and only 9 of those cases attempted selftreatment.

Of the total alleged contacts of syphilis and gonorrhea cases reported, 36.4 percent were located and 17.8 percent were found to be infected. Of the alleged contacts located, 49.0 percent were diagnosed as infected. Over two-thirds of alleged contacts were under 25 years of age; one-seventh were under 20. One-fourth were stated to be married. Waitresses, factory workers, office workers, housewives, and domestic help comprised over one-half the total alleged contacts. Prostitutes were few in number (1.4 percent), and are no longer considered an important problem. The casual "pick-up" was the source of infection in over three-fourths of all venereal disease cases.

Dance halls, hotels, and restaurants were the important places of encounter, and almost 50 percent of exposures occurred in hotels, rooming houses, and cabins, with over 40 percent occurring in private homes or outdoors.

One-third of the exposures occurred outside the province in which the individual reported for treatment. Sources of infection in any area are shown to be responsible for spread of disease to distant points. Almost 500 cities, towns, and villages in Canada were named during 1944 in the spread of venereal disease.

Application of the findings of this study to peacetime venereal disease control is discussed. Through the educational program, success was experienced in preventing infection as much as possible and in inducing treatment of venereal disease; however, the social problem underlying venereal disease is still to be dealt with.

CINCINNATI J. MED., CINCINNATI

The present status of penicillin in the therapy of syphilis. George X. Schwemlein. 27: 223–231, Apr. 1946.

COLORADO STATE BOARD OF HEALTH BULL., DENVER

Standards upon which approval of laboratories is based (for performing serological tests for syphilis in accordance with premarital and prenatal laws). 10: 13–16, Apr. 1946.

CONNECTICUT HEALTH BULL., HARTFORD

Serological tests for syphilis in Connecticut 1945. Earle K. Borman and Friend Lee Mickle. 60: 115–116, May 1946.

CONNECTICUT M. J., HARTFORD

Lesions of the female external genital tract susceptible to office treatment. Mortimer D. Speiser. 10: 395–406, May 1946.

EDINBURGH M. J., EDINBURGH

Penicillin in the treatment of venereal disease: a year's experience in a civilian clinic. R. C. L. Batchelor, W. H. Donald, M. Scott Gray, R. P. Jack and M. Murrell. 53: 31–36, Jan. 1946.

GEORGIA'S HEALTH, HAPEVILLE

Columbus mass VD–TB survey making rapid progress. 26: 2, May 1946.

HAWAII M. J., HONOLULU

Venereal contact investigation (Hawaii). Editorials. 5: 204, Mar.–Apr. 1946.

HEALTH, TORONTO

Social remedies for social diseases. Spring number: 6–8, Apr. 1946.

HEALTH LEAGUE OF CANADA, TORONTO

Social hygiene division. (Proceedings of the 26th annual meeting.) pp. 1–28, Oct. 29, 30, and 31, 1945.

ILLINOIS HEALTH MESSENGER, SPRINGFIELD

Health protection for marriage. 18: 38, May 15, 1946.

ILLINOIS M. J., OAK PARK

*Clinical evaluation of serologic tests for syphilis in eight thousand cases. Joseph M. Lubitz. 89: 20–25, Jan. 1946.

Clinical evaluation of serologic tests for syphilis in eight thousand cases.—This is a report of the clinical evaluation of the results of serologic tests for syphilis in 8,000 consecutive cases in a marine hospital. The standard Kahn qualitative and simplified Kolmer-Wassermann tests were employed throughout, with each positive test repeated at least once. Of the 8,000 serologic tests made upon admission, 226 (2.9 percent) were positive with 1 or more tests. The incidence of false positive reactions was 0.4 percent of the total tests made, and 16.8 percent of the total positive reactions.

Thirty-one of the positive results were definitely proved false positive reactions on the basis of the patients' histories and possession of one of the known causes of such reactions and on persistently seronegative results in subsequent examinations. Common colds, virus pneumonia, and upper respiratory infection accounted for 10 of the false positive reactions; malaria for 6; smallpox vaccination for 5; scarlet fever, leprosy, balanitis, diabetes, jaundice, infectious mononucleosis, bone tuberculosis, and pulmonary tuberculosis each accounted for 1; and general biologic reaction, cause undetermined, accounted for 2.

Among 188 cases which were not considered false positive reactions, the 2 following divisions are made: (1) 132 patients were considered true syphilitics, and of these, 66 gave demonstrable evidence of syphilis, and (2) in 56 cases of probable syphilis no clinical evidence of the disease was exhibited. The author concludes from his data that the use of only one standard test for syphilis may miss as high as 16 percent of syphilitic cases, and that doubtful serologic reactions should not be considered negative. Among all the cases giving seronegative reactions, 6 were found to be syphilitic.

The Kahn test is reported to have given

a higher incidence of false positive reactions than the Kolmer-Wassermann test; in the treated or latent cases the Kolmer test tended to be positive more often than the Kahn test. Neurosyphilis, symptomatic and asymptomatic, comprised half the syphilitic cases in this series.

The author makes frequent references to the literature, and 3 case reports are presented.

INDIAN J. VEN. DIS., BOMBAY

Penicillin in the treatment of venereal diseases. V. Govindan Nair. 11 : 69–76, Oct.–Dec. 1945.

J. A. M. A., CHICAGO

*Penicillin treatment of the syphilitic pregnant woman. Norman R. Ingraham, Jr., John H. Stokes, Herman Beerman, John W. Lentz and Virgene S. Wammock. 130 : 683–688, Mar. 16, 1946.

*Penicillin in prevention of prenatal syphilis. Mary Stewart Goodwin and Joseph Earle Moore. 130 : 688–694, Mar. 16, 1946.

*Reactions in penicillin therapy. Maxwell H. Kolodny and Eric Denhoff. 130 : 1058–1061, Apr. 20, 1946.

Penicillin treatment of the syphilitic pregnant woman.—This is the authors' second report on a study of penicillin treatment of syphilis in pregnant women. A total of 49 pregnant women averaging 19 years of age and in various stages of the disease was treated. The majority had secondary or early latent syphilis and 46 had received no previous therapy.

In treatment with penicillin only, the majority were given total dosages of 1.2 and 2.4 million O. u., administered intramuscularly in doses of 20,000 to 50,000 units, with initial doses reduced because of an apparent tendency to uterine reactions observed early in the study.

Response observed in the mother consisted of the prompt disappearance of the symptoms of early syphilis. Of 40 pregnancies reaching term, only 7 patients had achieved seronegativity; however, the authors conclude that reversal to negativity is not necessary to produce a normal infant. With an average period of 7 months' observation following treatment, only 20 of the 49 women developed persistently negative serologic tests. On the other hand, there were only 2 clinical relapses and 1 serologic relapse in 27 cases observed more than 6 months.

Based on an average of 5 months' postpartum observation, both clinical and serologic, 40 confinements resulted in the birth of 37 apparently normal children. There were also 1 abortion, 1 miscarriage, and 1 living syphilitic child. Eleven of the infants who were born with positive blood serologic tests (in every instance the mother was also strongly positive at delivery) became negative in an average time of 29 days.

The authors feel that treatment of syphilitic infants should be prolonged for at least 7½ days, and no real indication is seen that 2.4 million O. u. given over 7½ to 12 days are any more successful in preventing congenital syphilis and in curing the disease in the mother than are 1.2 million units given over 7 to 9 days. If the initial response is satisfactory, it is felt that there is no need for employing any drug other than penicillin.

Penicillin in prevention of prenatal syphilis.—Goodwin and Moore report on the combined results of studies, made in Baltimore and Philadelphia clinics (Ingraham and others), of the use of penicillin in primary and secondary syphilis in 57 pregnant women. Only 2 patients had received previous antisyphilitic treatment. Single courses of 1.2 to 2.4 million units were given to 52 patients, and 5 were retreated. Three patients received only 600,000 units and 4 others a total of 3.6 million units. The penicillin was given to 14 mothers before the sixteenth week of pregnancy, to 31 between the sixteenth and thirty-second weeks, and to 12 when duration of pregnancy was 32 weeks or longer at the time of treatment.

The Baltimore group feels that the suggestion that penicillin has abortifacient effects is unwarranted by the facts, while the Philadelphia group is inclined to advise a reduction of the initial penicillin dosage for the first 48 hours of treatment to avoid any danger.

The Philadelphia workers contend that the serologic response is slower in pregnant women because only 12 of 22 patients, followed for 6 months, became seronegative. The Baltimore workers, however, found nothing to suggest that pregnancy exerts any effect in slowing up serologic response as 20 of 24 of their patients reverted to seronegativity.

The highly successful results of treatment of mothers with early syphilis by means of penicillin, in both the Baltimore and Philadelphia clinics, have confirmed the fact that congenital syphilis can be prevented. Of 60 infants in the series, only 1 developed clinical evidence of congenital syphilis, while the others are apparently normal. Support is also given to the opinion that even though an infant has a positive blood serologic test within the first week of life, the child proves to be free of infection in 95 percent of the cases followed for a period of 3 months.

It is recommended that in syphilitic pregnant women penicillin be used routinely for the prevention of prenatal syphilis, other methods of treatment being abandoned. The treatment plan recommended is as follows:

The total dose of penicillin should be not less than 2.4 million units administered intramuscularly in aqueous or saline solution at intervals of not less than 2 or more than 3 hours night and day, and the total duration of treatment should be not less than 7½ days. Absorption-delaying methods of use of penicillin should not be used. The mother must be followed clinically and with quantitatively titered serologic tests at least once a month until delivery and at appropriate intervals thereafter. Retreatment with penicillin should be given to the mother during pregnancy if there is evidence of clinical or serologic relapse or if the original maternal serologic titer does not significantly decline within 3 months after treatment. The infant must be followed after birth for a minimum period of 3 months. Unless and until evidence that abortion, actual or threatened, is more frequent during penicillin treatment of the mother than during other forms of antisyphilitic treatment, speculation is useless as to whether the phenomenon is due to therapeutic shock or to the direct oxytocic action of penicillin. Pendin further information, a pregnant syphiliti woman previously treated with penicillir whether or not this earlier treatment wa apparently successful as to the mother infection, should be retreated with penici lin in each succeeding pregnancy. Th authors see no reason for unusual cautio in initiating the penicillin treatment c syphilitic pregnant women.

Reactions in penicillin therapy.—Th immediate and delayed reactions of 12 young men to penicillin, administered i tramuscularly, were observed. Of th group, 51 were hospital patients from th neurosyphilis and general medical se tions, and 73 were from the dermatolog section. Some were given 20,000 units c sodium salt in distilled water every hours for 8 doses, totaling 160,000 unit and the other patients received variou dosages of penicillin depending upon th disease for which they were bein treated.

A total of 21 immediate and 11 d layed reactions was observed. A greate number of immediate reactions (withi 24 hours after injection) were observe in 6 percent of neurosyphilis and genera medical cases, while 25 percent of th patients with dermatologic disorders r acted. Eighteen of the 21 reactions we in patients with skin diseases, and in 1 of these, exacerbation of a preexistin skin lesion with pruritus, hyperemia, an exudation of serum was a prominent fea ture. Of this group, 8 showed no othe manifestations of a reaction. A genera ized rash, edema (periorbital and/c labial), and gastrointestinal reaction were also noted. In 4 patients an "id reaction consisting of pruritus and vesi ulation of the hands and feet, more i tense in the interdigital webs, was seer No immediate urticarial or febrile rea tions were observed. Further injection were discontinued after reaction in a but 3 cases.

Delayed reactions (7 to 14 days afte beginning of therapy) occurred in a proximately 7 percent of the cases. Ther was no significant difference in incidenc of reaction between the neurosyphilis an other groups. No asthmatic or febrile reactions were encountered. Two patients showed both immediate and delayed reactions. Detailed reports of both immediate and delayed reactions are presented. No significant relationship was found between the incidence of reaction and previous penicillin therapy.

Some patients reacted consistently to each administration of penicillin while others failed to react even though they had done so previously. It was found that reactions could be repeated consistently only if an interval of more than 1 week elapsed between the courses.

Patients who gave histories indicative of drug intolerance, penicillin handling, previous skin disease, and personal and familial allergies had the same incidence of reaction as patients without such history.

Skin tests were performed. It was found that 1,000 to 2,000 units per dose (0.1 cc.) were necessary to produce consistent responses. Concomitantly performed trichophytin skin tests showed a high degree of correlation in positive reactors. Conjunctival tests with penicillin were uniformly negative.

J. AM. PHARM. A. (SCIENT. ED.), WASHINGTON

Diffusion of sulfonamides from emulsified ointment bases. C. Lee Huyck, Ruby S. Hirose and Pedro A. Reyes, Jr. 35 : 129–140, May 1946.

The status of tyrothricin as an antibiotic agent for topical application. John Henderson. 35 : 141–147, May 1946.

J. ARKANSAS M. SOC., LITTLE ROCK

Report of Committee on Syphilis Control. D. W. Goldstein, Chairman. (Proceedings of the seventieth annual session Arkansas Medical Society.) 43 : 22, June 1946.

J. INDIAN M. A., CALCUTTA

Infective hepatitis. (In syphilis.) T. K. Raman. 15 : 165–180, Mar. 1946.

Use of penicillin in multiple venereal infections. K. D. Lahiri. 15 : 189, Mar. 1946.

J. INDIAN M. GAZ., CALCUTTA

The Wassermann positive rate of cases from hospitals and venereal clinics of Calcutta in 1939, 1943, 1944 and 1945. S. D. S. Greval, A. B. Roy Chowdhury and B. C. Das. 80 : 633–634, Dec. 1945.

J. INDIANA M. A., INDIANAPOLIS

*Uveitis in some systemic diseases. Carl J. Rudolph. 39 : 212–215, May 1946.

Uveitis in some systemic diseases.—The author discusses types of uveitis which may be seen by the general practitioner before the oculist sees the patient or in referral from the oculist to aid in establishing the etiology.

Syphilis does not involve the uvea so frequently as formerly believed, although any part of the eye may be involved and characteristically found are symptomatic pigmentary degeneration of the retina, primary optic atrophy, Argyll Robertson pupil, interstitial keratitis, salmon patch, and sixth nerve paralysis. The lesions are often misleading, and Wassermann, Kahn, colloidal gold, and other laboratory tests are of more value when syphilis is involved than in other forms of uveitis.

Iritic lesions may vary from the early roseola (hyperemia) which appears early in acquired syphilis, to the large gumma which is usually pink, red, or violet, and appears early or late (6 months to 10 years or more) in the course of the disease. Condylomas or papulomas together with gummas constitute the syphilomas.

The salt and pepper fundus is usually associated with congenital syphilis, although the appearances of syphilitic lesions of the fundus are many and various.

J. MICHIGAN M. SOC., MUSKEGON

*The effects of small doses of penicillin administered to patients with undiagnosed early syphilis. Thomas H. Miller. 45 : 353–355, Mar. 1946.

The effects of small doses of penicillin administered to patients with undiagnosed early syphilis.—Three cases of gonorrheal urethritis treated by intramuscular injections of 100,000 O. u. of penicillin are reported. In each instance, an unrecognized early syphilitic infection was present at the time that the penicillin was given.

In cases 1 and 2, the penicillin dosage did not prevent the development of secondary and primary syphilides, 4 months and 5 weeks, respectively, after the last sexual contact. In case 3, the same dose and a second similar course, administered 6 days prior to admission, also failed to heal the penile lesions or to sterilize the regional lymphatic nodes.

In all instances, the treatment of gonorrheal urethritis with syphilologically inadequate doses of penicillin suppressed or delayed early clinical manifestations of syphilis. There was no influence exerted upon the normal development of the blood serologic reaction with the possible exception of case 2. All cases responded satisfactorily to the further administration of penicillin.

It was concluded from observation of these cases that penicillin may suppress or delay the appearance of early syphilitic manifestations when it is given in therapeutically inadequate dosages, and when given to undiagnosed cases it may prevent the development of infectious lesions.

Routine inspection and a blood serologic test for syphilis should be given once a month for 1 year to all gonorrhea patients who have received less than 1,200,000 O. u. of penicillin.

An adequate follow-up system and routine administration of 1,200,000 O. u. or more of penicillin to all cases of gonorrheal urethritis, even though there may be no past history or present signs or symptoms of syphilis, should be considered.

J. Missouri M. A., St. Louis

Intrathecal penicillin in the treatment of neurosyphilis. A preliminary report. Samuel H. Rubin and Cecil G. Leitch. 43 : 169–171, Mar. 1946.

J. Nat. M. A., New York

When is gonorrhea cured? Chas. H. Garvin. 38 : 89–90, May 1946.

J. Roy. Army M. Corps, London

Typhus fever in Iran and Iraq, 1942–43. (False positive STS reactions.) A report on 2,859 cases. Part 11. A. Sachs. 76 : 87–108, Mar. 1946.

J. Roy. Inst. Pub. Health & Hyg., London

Removing a stigma. (Editorial Notes.) 9 : 133, May 1946.

J. Social Hyg., New York

Social case work among venereally infected females in a quarantine hospital. Charlotte Rolison. 32 : 18–21, Jan. 1946.

*Factors affecting the response to venereal disease education. Paul G. Getzoff. 32 : 22–27, Jan. 1946.

*Fighting "sin in paradise." Ferris F. Laune. 32 : 67–76, Feb. 1946.

No red light district in Manila. 32 : 76, Feb. 1946.

*The Honolulu myth. Samuel D. Allison. 32 : 77–81, Feb. 1946.

Paris moves to close brothels. 32 : 81, Feb. 1946.

*The Navy provides social protection for servicemen in Japan. 32 : 82–89, Feb. 1946.

Social protection needs in peacetime. 32 : 90–99, Feb. 1946.

Factors affecting the response to venereal disease education.—This study is based upon a questionnaire submitted to 2,968 enlisted men at the Lockbourne Army Air Base to determine their response to venereal disease education.

The questionnaire included such items as age, marital status, education, past infection with venereal disease, extent and source of sex education prior to induction into the Army, value of posters and lectures as reminders of the dangers of venereal disease infection, and attitude toward the Army method of punishment of infected soldiers.

Results of the questionnaire showed, among other facts, that the majority of the group was under 26 years of age and had received a high school education; that our school systems and adolescence guidance groups offer little instruction in sex hygiene, as evidenced by the fact that only 18 percent of the 68 percent who graduated from high school had received any such information at school; and that, although venereal disease lectures and posters are satisfactory to an appreciable degree, there is nevertheless room for increased emphasis upon continence and prophylaxis and for increased cleverness in the presentation of pamphlets.

The examination included questions on symptoms of syphilis and gonorrhea, possibility of cure, prevention, and prevalence of these diseases. It was discovered that while most of the examinees had a fairly good working knowledge of the venereal diseases, confusion still exists as to the differentiation of syphilis from gonorrhea and in the meaning of a blood test. Recognition of the high prevalence of the venereal diseases was most gratifying, however.

Fighting "sin in paradise."—This article is an account of prostitution control in Hawaii. For some years before the attack on Pearl Harbor, a system of "controlled" prostitution was in effect, the houses operating under rules and regulations formulated by the Chief of Police. Registered prostitutes operated in authorized houses at specified rates, and the business was most lucrative, especially during the war. Prostitution became so flagrant, in fact, that Hawaii's reputation caused public opinion in the Islands to turn against the situation, and a Committee on Social Protection was appointed to investigate conditions.

Reports of the Committee showed that prostitution was not confined to the segregated district but was widespread throughout the city of Honolulu, and shortly thereafter the known houses were ordered closed. There followed within the next year a 24-percent decrease in rape cases, a 37-percent decline in gonorrhea cases, and a 43-percent decrease in syphilis cases. Prostitution interests are said to be regaining their former hold, however, and it is felt that the trend is toward a reestablishment of the segregated district.

The Committee on Social Protection remains vigilant, however, and is making every effort to keep civic bodies posted as to developments and to oppose all attempts toward the reestablishment of "controlled" prostitution.

The Honolulu myth.—The author discusses the history of prostitution in the Hawaiian Islands since its inception a few years after discovery of the Islands in 1778. License had become so rife that in 1860 the legislature, in an effort to mitigate the evils and diseases arising from prostitution, created an act which provided for registration, medical examination, and free treatment of prostitutes. Venereal disease continued unabated, however, and the legislature finally withdrew the act in 1905.

In 1914 several committees began to study social conditions, and in 1916 the Iwilei district in Honolulu was closed, with a subsequent reduction in Army venereal disease rates of about 38 percent. Within a few years, however, the houses reopened and the situation again deteriorated until in 1930 a system of regulated prostitution was instituted, involving medical inspection of prostitutes and house prophylaxis.

Venereal disease rates again failed to decrease under this system of control, and during World War II, when prostitution activities became most flagrant, reports from the Health Department, public opinion, and a newly appointed Social Protection Committee served to bring about the closing of the known houses. The resultant drop in sex crimes and venereal disease rates shows that repression is working where regulation had failed.

The Navy provides social protection for servicemen in Japan.—This article presents an exchange of correspondence between Navy officials and civilians concerning prostitution conditions in Japan as affecting Navy servicemen there.

The policy of venereal disease control by the Navy in 1945, as described by Navy Chaplain Lawrence L. Lacour, permitted unrestricted access to houses of prostitution in the Yokosuka area, where the venereal disease incidence among prostitutes was said to be 100 percent. Prophylaxis was administered by naval corpsmen on duty in the houses, and in some cases, the inmates were inspected and the servicemen told that patronage of the houses was medically safe. Many exposures were therefore unprotected by prophylaxis. Moreover, whereas on some ships the men were warned of the high incidence of venereal disease ashore, on other ships nothing was done to discourage promiscuity.

In September 1945, all red-light districts were placed out of bounds, but in October, against advice of Navy chaplains, it was decided at a meeting of medical officers to open one house, the Yosuura, with the understanding that all the women were diseased, but with a Navy-operated prophylactic station available within the house. As pointed out by the chaplains, this Navy policy of unrestricted sexual opportunity with diseased women was no solution to the problem of venereal disease control.

In correspondence between Representative Clyde Doyle and the Secretary of the Navy in December 1945, it was stated by the Secretary that following an investigation of the conditions described above, all houses of prostitution were placed out of bounds, and prophylactic stations were placed in effective locations. This step was followed by a significant reduction in the venereal disease rates for servicemen in Japan.

LANCET, LONDON

Effect of pH of the medium on activity of streptomycin and penicillin, and other chemotherapeutic substances. E. P. Abraham and E. S. Duthie. No. 6396: 455–459, Mar. 30, 1946.

Chemistry of the penicillins. No. 6398: 539–541, Apr. 13, 1946.

M. ANN. DISTRICT OF COLUMBIA, WASHINGTON

*The present status of penicillin therapy of syphilis. Sidney Olansky and Ben D. Chinn. 15: 204–208, May 1946.

Proposed venereal disease control program. S. Ross Taggart. 15: 231–232, May 1946.

The present status of penicillin therapy of syphilis.—The authors discuss the treatment of syphilis with penicillin, which is still in an experimental stage. Penicillin appears to be the most effective and least toxic drug yet discovered. In older, extended methods of treatment only about 15 to 20 percent of syphilis patients ever completed treatment, but in present rapid treatment methods of penicillin almost 100 percent complete the required course of treatment.

Reference is made to the organized study for the evaluation of penicillin treatment of syphilis, now being carried out under the direction of the U. S. Public Health Service in cooperation with the Penicillin Panel of the National Research Council, in which the Rapid Treatment Center at Gallinger Hospital, Washington, D. C., is taking part.

Treatment schedules are presented. The optimum effective dose has not yet been established for any of the forms of syphilis, but it is evident that at least 3,000,000 to 4,000,000 units are required in the early forms of syphilis and 6,000,000 to 10,000,000 units in neurosyphilis. The duration of treatment is probably about 14 days in early syphilis and up to 20 days for late syphilis.

Although an extensive series has not yet been carried out, the authors are of the opinion that penicillin-beeswax mixtures are just as effective in the treatment of primary and secondary syphilis as is sodium penicillin in water solution. It is hoped that oral penicillin preparations will not be used in the treatment of syphilis.

The treatment of syphilis in pregnancy has shown spectacular results in the hands of most investigators. At the Gallinger Hospital Rapid Treatment Center, 149 women were treated during pregnancy. Of all these cases, only 1 infant was born with congenital syphilis and this in a woman who began treatment 2 weeks before term. All the women received at least 2,400,000 units of penicillin, but some were on a schedule which included arsenoxide or arsenoxide and bismuth. The authors emphasized that in penicillin therapy the mother may not have been cured by the treatment during pregnancy although she may have delivered a normal child.

The importance of serologic and spinal fluid follow-up as criteria for cure is stressed by the authors. Differentiation is made between "relapse" and "reinfection."

Reactions which sometimes occur as a result of penicillin are discussed. These include Herxheimer reactions and dermatoses. Fungus allergy has also been observed. Sterile abscesses have occurred only where penicillin has been inadvertently inoculated subcutaneously. Continuous low-grade fever sometimes occurs throughout the treatment period and is probably due to impurities in the preparation.

Reference is made to the treatment of gonorrhea with penicillin where the possibility of a concurrent syphilitic infection exists. Penicillin therapy for gonorrhea may prolong the incubation period and mask the symptoms of syphilis if the latter is contracted simultaneously. The authors believe that the gonorrhea should be treated, and they stress the importance of serologic follow-up if there is evidence or suspicion of coexisting syphilis.

The serious responsibility placed upon physicians treating syphilis with penicillin concludes the authors' discussion.

Maryland Health Bull., Baltimore

Maryland's health record for the first quarter of 1946. (Venereal disease incidence.) 18: 17–24, May 1946.

Mil. Surgeon, Washington

Management of venereal disease in a field army under combat condition. Winfred P. Killingsworth. 98: 320–326, Apr. 1946.

Grants for research. Association notes. Public Health Service. 98: 451, May 1946.

Mod. Hosp., Chicago

Coming trends in medical care. Harold C. Lueth. 66: 100–104, Apr. 1946.

Estrogenic hormone: its evolution; clinical applications; the need for caution. Edward C. Pliske. 66: 104–110, Apr. 1946.

New England J. Med., Boston

Granuloma inguinale: A proctologic consideration. Joseph Berkowitz. 234: 625–627, May 9, 1946.

Osseous syphilis. (Case report.) Mark Exley and A. W. Newton. 234: 661–664, May 16, 1946.

New York State J. Med., New York

Sequelae following oral and topical use of penicillin. Louis Kleinfeld. 46: 915–916, Apr. 15, 1946.

Ohio Pub. Health, Columbus

(VD rates in Cleveland.) 10: 9, Mar. 1946.

Proc. Soc. Exper. Biol. & Med., Utica

Studies on the absorption and excretion of streptomycin in animals. Robert B. Stebbins, Otto E. Graessle and Harry J. Robinson. 60: 68–72, Oct. 1945.

Transmission of streptomycin from maternal blood to the fetal circulation and the amniotic fluid. John H. E. Woltz and Marjorie M. Wiley. 60: 106–107, Oct. 1945.

*Adaptability of gonococcus to four bacteriostatic agents, sodium sulfathiazole, rivanol lactate, promin, and penicillin. Charles M. Carpenter, Jeanne M. Bahn, Helen Ackerman and Herbert E. Stokinger. 60: 168–171, Oct. 1945.

Adaptability of gonococcus to four bacteriostatic agents, sodium sulfathiazole, rivanol lactate, promin, and penicillin.—In a study to find a possible solution to drug resistance by the organism, the authors used 5 strains of the gonococcus adapted to grow in gradually increased concentrations of each of the following agents: sodium sulfathiazole, rivanol lactate, promin, and penicillin. Only slight adaptation to growth was attained when the strains were exposed to gradually increased concentrations of sodium sulfathiazole, rivanol lactate, and promin in combination. When penicillin was added to these drugs, none of the 5 strains developed resistance to their combined effects. Interpretation of the results and the possible clinical application of the in vitro observations are presented.

Pub. Health Nursing, New York

*Nurse and family in VD control. Hazel Shortal. 38: 56–62, Feb. 1946.

Prostitution, promiscuity, venereal disease. William George Gould. 38: 173–177, Apr. 1946.

Nurse and family in VD control.—While many other communicable diseases have been successfully controlled, venereal disease is still widespread. If the public health nurse will accept this disease as a major part of her responsibility in dealing with family problems, show a real interest in its eradication, and work with other coworkers in the field, much can be accomplished.

The nurse's opportunity to improve or establish good sex behavior in children is emphasized. The fact is also pointed out that she is often able to help solve family conflicts which otherwise might lead to digressions from the normal union of married life, which not only of themselves may contribute to the spread of venereal disease, but are also certain to weaken the influences which normally would prevent the children from growing up with promiscuous sex habits. Statistics from other sources are given showing the environmental effects of promiscuous parents upon their children.

The lack of instruction in sex relationships and family psychology in the school has made it apparent that a good educational program should be created. The nurse must be prepared to offer guidance and counsel to the teacher in the proper methods of approach. The nurse can assist as a civic leader by revealing to prominent citizens, civic groups, churches, and parents those community conditions which tend to foster promiscuity.

Proper methods of interviewing, case finding, and case holding are discussed. The following points are emphasized for case finding: study of available information, including individual records and trends toward promiscuity; personal interviews; and a knowledge of the facilities in the community for meeting the patient's needs.

The first step in case holding is the constant evaluation of clinic service, personnel, and equipment. The nurse should always consider the patient and eliminate any obstacles preventing his return to the clinic. Extent of follow-up depends upon the infectiousness of the disease and the amount of treatment already received.

The public health nurse should critically analyze her own methods and strive toward giving the patient an appreciation of his needs and the possibilities of benefits to be derived from health supervision.

Special Reports

With the development of effective rapid treatment methods for syphilis and gonorrhea, a major part of the control program shifted to the development of more efficient case-finding methods. In considering ways in which this aim could be accomplished, several States set up procedures to help find out what case-finding program was most effective. These States secured tabulations on reasons for coming to treatment, e. g.: patients who came in of their own accord, patients referred by private physicians, patients who were brought in as a result of contact investigation, patients who came through Selective Service examination, patients who came through law violation or jail examination, and patients who came through routine examination such as prenatal, premarital, and pre-employment blood testing programs. Data broken according to these categories were collected in two States for 1944 and 1945. The June 1945 issue of this Journal presented the tabulation for the year 1944, and the table for 1945 was published in the May 1946 issue of the Venereal Disease Division's Statistical Letter.

Conclusions based on comparing the results for either year separately or a comparison of one year to the next are not justified both because of biases within the data themselves and because these two States are not representative of the country as a whole.

Voluntary admissions show the greatest increase of any of the reasons given for coming to treatment. This increase is apparent both on a percentage basis and on a straight numerical basis, and is equally apparent for all diagnostic categories. It seems fair to assume that some part of this rise in voluntary admissions is probably the combined effect of the increasing attention which civilian authorities have given to educational technics as a case-finding tool and the prolonged and intensive venereal disease education received by the millions of men already released from the Armed Services during the period of their military service. If this is the case, this holds great significance for future venereal disease control. Due to their military experience, now and for some years to come, a much larger proportion of the civilian population in the age groups of highest incidence will have a relatively high level of accurate information about the mode of infection and symptoms of syphilis and gonorrhea and the desirability of obtaining competent diagnosis and treatment. Furthermore, this number can be greatly augmented through educational effort by civilian agencies and groups. The objective evaluation of educational technics and the consistent and long-term application of those which appear to be most effective will lead to a more informed general public, even though military control cannot be applied to the civilian population.

It has been pointed out that the inadequacies of the data preclude any definite conclusions, but the data do suggest that further information should be secured over a wider area. It is thought that it will be helpful if the information is sought at the time of diagnosis rather than at the time of treatment, particularly for the purpose of evaluating case-finding methods. At the clinic level, in particular, many of the patients are referred from other medical sources and the original reason for seeking medical care becomes lost. If, however, the patient is questioned at the time of his first diagnostic interview, it is believed that much of this bias might be removed.

Several States have already started to secure information on the reasons for coming to diagnosis rather than reasons for coming to treatment. It is hoped that these data will be collected in many areas of sufficiently varying composition to make a definite statement concerning the most efficient case-finding methods.

At the suggestion of Dr. James H. Lade of the New York State Health Department, the Venereal Disease Division analyzed contact interviewing in terms of the number of new, previously untreated cases of early syphilis and gonorrhea brought to treatment, by sex and race of the clinic patients giving the original contact information. Material for the study was obtained from three large population areas and comprised results of the investigation of contacts named by 2,587 white females, 1,086 white males, 5,171 Negro females, and 4,978 Negro males. Male contacts investigated were assumed to have been named by female patients, and females by male patients. From the data, the following general conclusions were drawn:

1. For both white and Negro original patients: (a) more contacts were reported per male patient than per female, (b) more contacts were brought to treatment per male patient than per female.

2. For both male and female patients: (a) more contacts were reported per Negro patient than per white, (b) more contacts were brought to treatment per Negro patient than per white.

3. As a general rule, approximately twice as many new cases were brought to treatment through investigating contacts of Negro males than through investigating contacts reported by other types of patients.

During the fiscal year ending June 30, 1946, a total of 59 facilities for intensive treatment of syphilis operated in 37 States with the assistance of Federal funds. State health departments operated or administered 51, while 8 institutions were operated by the Federal government at the request of States. Of the State-operated facilities, 11 were Statewide bed-rental projects in more than 300 general hospitals.

During the calendar year ending December 1945, intensive treatment facilities admitted for treatment 74,946 cases of infectious or potentially infectious syphilis (new admissions for primary, secondary, and early latent syphilis). (During this same period throughout the continental U. S., a total of 182,803 cases of early syphilis was reported to State health officers.) For the last 6 months of the year, rapid treatment facilities also admitted 2,199 pregnant syphilitic women, 1,835 patients with congenital syphilis, and 2,787 with central nervous system syphilis (largely asymptomatic). During the whole period, 8,653 late or late latent syphilis cases were admitted, as were 51,665 patients with gonorrhea alone, the majority of whom came as the result of investigations of contact reports received by local health departments from the Armed Services. With the end of the war and release of penicillin for general use, most rapid treatment facilities adopted a policy of not admitting patients with gonorrhea as their only venereal disease complaint.

Cases of Syphilis and Gonorrhea Reported for the First Time in States, Territories, and Possessions for the First 4 Months of 1946

Area	Syphilis										Gonorrhea	
	Total [1]		Primary and secondary		Early latent		Late and late latent		Congenital			
	Apr.	Jan.–Apr.	Apr.	Jan.–Apr.	Apr.	Jan.–Apr.	Apr.	Jan.–Apr.	Apr.	Jan.–Apr.	Apr.	Jan.–Apr.
Alabama	1,090	4,109	307	1,036	278	1,131	185	608	25	97	1,052	4,207
Arizona	127	576	45	221	41	177	39	155	2	23	139	520
Arkansas	803	3,586	178	822	320	1,359	260	1,232	45	171	520	2,398
California	2,024	8,195	467	1,930	548	2,327	912	3,517	57	241	2,551	10,201
Colorado	224	951	83	347	56	260	76	306	9	38	215	836
Connecticut [4]	------	------	------	------	------	------	------	------	------	------	------	------
Delaware	95	398	39	172	26	119	19	65	2	6	35	128
Dist. Columbia	243	930	86	284	98	361	53	232	2	15	716	2,581
Florida	1,358	4,797	269	1,033	591	2,040	328	1,240	27	122	1,453	5,410
Georgia	1,340	6,216	269	753	285	1,326	748	3,962	37	174	1,153	4,459
Idaho	56	229	9	54	17	52	21	76	2	6	35	173
Illinois	2,334	8,618	628	2,309	662	2,584	983	3,493	61	232	3,320	12,652
Indiana	649	2,171	153	496	100	329	276	778	13	55	182	1,061
Iowa	156	611	65	237	40	168	41	154	1	12	219	784
Kansas	205	641	75	221	51	169	71	232	8	19	242	967
Kentucky	565	2,476	249	1,150	146	640	96	429	20	83	543	2,838
Louisiana	1,740	6,139	513	1,703	404	1,632	280	906	66	231	1,215	4,829
Maine	86	284	39	151	6	26	32	82	------	11	93	391
Maryland	713	2,741	199	796	153	623	172	596	16	53	483	1,843
Massachusetts	444	1,987	174	829	------	------	253	1,083	17	75	416	1,825
Michigan	1,558	5,823	392	1,566	413	1,458	556	1,940	36	141	969	4,339
Minnesota	166	545	43	176	28	83	77	230	8	21	244	843
Mississippi	2,211	8,571	886	3,170	685	2,759	541	2,274	99	368	3,946	14,726
Missouri	1,228	4,246	377	1,163	440	1,594	373	1,347	33	103	701	2,849
Montana	25	113	8	38	12	25	1	20	2	2	26	121
Nebraska	287	789	56	186	51	213	121	254	8	23	133	561
Nevada	67	202	14	37	------	------	46	99	2	6	26	95
New Hampshire	23	83	8	21	3	15	11	42	------	4	43	169
New Jersey	851	3,276	163	636	282	1,107	371	1,424	33	97	573	1,840
New Mexico	167	541	45	132	43	156	72	231	7	22	111	511
New York	2,857	12,084	619	2,645	739	3,219	1,403	5,826	78	313	[2] 1,730	[2] 7,454
North Carolina	718	3,048	321	1,372	275	1,131	96	410	26	135	1,372	4,803
North Dakota [4]	------	------	------	------	------	------	------	------	------	------	------	------
Ohio	1,671	6,622	482	1,988	508	2,025	626	2,337	55	211	681	2,714
Oklahoma	635	2,329	162	526	183	751	141	575	42	132	1,368	3,612
Oregon	138	481	38	137	21	71	54	213	5	10	157	752
Pennsylvania	1,563	4,820	413	1,118	474	1,547	501	1,603	51	234	[3] 286	[3] 1,556
Rhode Island	126	445	19	121	12	38	55	186	5	21	50	189
South Carolina	629	2,381	240	915	214	785	107	466	28	111	825	3,490
South Dakota	53	146	19	59	10	27	17	50	7	10	47	225
Tennessee	1,141	4,888	368	1,476	378	1,765	360	1,531	26	92	1,922	7,815
Texas	1,043	3,795	372	1,264	397	1,504	224	790	45	158	1,312	4,996
Utah	67	224	24	78	11	41	30	100	2	5	36	190
Vermont	17	85	10	38	1	11	4	29	2	6	44	146
Virginia	1,141	4,169	332	1,158	438	1,709	302	1,140	45	114	1,172	4,425
Washington	162	899	46	238	40	231	61	345	5	24	332	1,502
West Virginia	660	2,582	257	1,284	175	608	176	552	17	71	584	2,980
Wisconsin	247	964	71	228	48	196	107	458	1	7	140	590
Wyoming	24	99	6	28	6	26	10	38	------	------	30	106
Total United States	33,727	129,905	9,638	36,342	9,709	38,418	11,288	43,656	1,078	4,105	33,447	131,702
Alaska	6	46	2	5	------	12	3	19	1	5	97	264
Canal Zone	21	111	2	19	6	28	11	55	------	2	85	293
Hawaii	92	326	10	23	6	23	68	248	7	30	34	167
Puerto Rico	740	3,222	93	407	287	1,191	192	839	166	777	447	1,830
Virgin Islands	5	28	3	4	------	17	1	5	1	2	15	84
Total United States and Possessions	34,591	133,638	9,748	36,800	10,008	39,689	11,563	44,822	1,253	4,921	34,125	134,340

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[1] Includes "not stated." [2] New York City only. [3] Philadelphia only. [4] No report for April.

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FEDERAL SECURITY AGENCY
United States Public Health Service

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United States Public Health Service

THOMAS PARRAN, *Surgeon General*

Editor: J. R. HELLER, JR., *Medical Director*
Chief, Venereal Disease Division

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Results of Rapid Treatment of Early Syphilis

J. R. Heller, Jr., Medical Director
Chief, Venereal Disease Division
United States Public Health Service

The participation of the U. S. Public Health Service in the evaluation of various treatment methods for early syphilis may be grouped in three broad phases. The first was the evaluation with the Cooperative Clinical Group of the results of standard therapy of weekly injections of arsphenamine and heavy metal. This study was conducted in the period 1930–1935. The second was the field study evaluation of massive arsenotherapy conducted with the New York and Midwestern groups of cooperating clinics that took place during the 10-year period 1933–1943.

The present communication is a progress report on an evaluation study of the results in early syphilis of various intensive treatment schedules utilizing penicillin alone or with adjunctive therapy, and of certain methods and schedules of intensive arsenotherapy. The records on which the study is based are from 16 rapid treatment centers. These centers are members of a group of some 50 publicly-supported hospitals which were established early in the war to permit large-scale application of rapid treatment methods. The establishment of these facilities grew out of the observation that 75 percent of patients with early syphilis admitted to clinics for routine therapy lapsed from treatment before receiving the minimum protective regimen of 20 arsenical injections together with heavy metals.

Schedules being studied in our current evaluation and reported on herewith are as follows:

METHODS OF TREATMENT

1. 300,000 units of penicillin (5,000 q. 3 hrs. for 8 days) with 320 mg. of arsenoxide but no bismuth.
2. 600,000 units of penicillin (10,000 q. 3 hrs. for 8 days) with no conjunctive drugs.
3. 1,200,000 units of penicillin (20,000 q. 3 hrs. for 8 days) with 320 mg. of for 8 days; or 40,000 q. 3 hrs. for 4 days) with no conjunctive drugs.
4. 1,200,000 units of penicillin (20,000 q. 3 hrs. for 8 days) with 320 mg. of arsenoxide but no bismuth.
5. 600,000 units of penicillin (10,000 q. 3 hrs. for 8 days) with 7–9 mg. of arsenoxide per kilogram of body weight and 600 mg. of bismuth, or 8–6–3 routine.
6. 1,200,000 units of penicillin (16,667 q. 3 hrs. for 9 days) with 4–6 mg. of arsenoxide per kilogram of body weight and no bismuth, or 5–12–0 routine.
7. 1,200,000 units of penicillin (16,667 q. 3 hrs. for 9 days) with 4–6 mg. of arsenoxide per kilogram of body weight and 600 mg. of bismuth, or 5–12–3 routine.
8. 2,400,000 units of penicillin (40,000 q. 3 hrs. for 8 days or 80,000 q. 3 hrs. for 4 days) with no conjunctive drugs.
9. Multiple injection 11–20 days; 1,200 or more mg. of arsenoxide plus varying quantities of bismuth.
10. Five-day intravenous drip; 1,200 mg. of arsenoxide.
11. Eight-day intravenous drip; 1,080–1,200 mg. of arsenoxide and 12 injections of bismuth.

The present report shows the results obtained after 12 to 15 months' observation in the treatment of approximately 8,000 rapid treatment center patients. To insure minimum observation, only those cases treated prior to April 1, 1945 are included in this presentation, with the exception of patients receiving 1,200,000 units of penicillin plus 5 injections of arsenoxide with or without the addition of 3 injections of bismuth. This sched-

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Presented at the 95th annual session of the American Medical Association, San Francisco, Calif., July 1–5, 1946.

ule was instituted so recently that cases treated through December 31, 1945 but after April 1, 1945 had to be included in order to present preliminary results.

Records from 16 rapid treatment centers utilized in the preparation of this report have been divided into two groups, A and B, to afford a more accurate presentation of results.[1]

Group A facilities had more complete follow-up observation than those in group B. Only a relatively small proportion of the cases treated at group A centers was lost from observation by the end of 1 year. In addition, posttreatment examinations were performed on most of their patients at the center. At group B facilities, the serologic quantitative titer was relied upon to a very great extent for detecting "treatment failures."

In this report only those methods of treatment are included which have a minimum number of 20 cases in any specific diagnostic group or observation period.

COMPARATIVE RESULTS 12–15 MONTHS AFTER TREATMENT

Chart I shows the status of cases observed 12 to 15 months after treatment by admission diagnosis and type of treatment. Since only in the secondary syphilis group here studied were there sufficient cases observed 12 to 15 months by all treatment methods, this group is used as the basis for comparing treatment methods.

In the treatment of secondary syphilis, 5-day arsenical intravenous drip was superior to the other six technics compared at the end of 15 months. The percentage of cases exhibiting unsatisfactory results following the use of penicillin varied from 41 percent following 2,400,000 units of penicillin alone to 51 percent following 300,000 units plus 320 mg. of arsenoxide. The 8–day schedule employing arsenoxide and bismuth in combination with 600,000 units of penicillin showed approximately the same percentage of satisfactory results as 2,400,000 units of penicillin alone, 58 percent and 59 percent, respectively.

The last section of the chart shows the results of treatment of cases admitted as failures to an initial rapid treatment routine. It is interesting to note that from 15 to 17 percent more cases exhibited an unsatisfactory response when treated for recurrent primary or secondary syphilis than for previously untreated secondary syphilis patients treated with the same schedules.

COMPARATIVE RATES SHOWING PERCENTAGES OF CASES RETREATED

Chart II shows the cumulative percentage of patients with the admission diagnosis of previously untreated secondary syphilis who were retreated following clinical or serologic relapse, reinfection, or for seroresistance by treatment schedules employed at group A and group B facilities.

At group A facilities, 1,200,000 units of penicillin plus 320 mg. arsenoxide showed the best results at the end of 12 months. However, the difference between this schedule and that employing 1,200,000 units of penicillin alone was not statistically significant. For penicillin alone, 1,200,000 units showed significantly better results than 600,000 units from the ninth through the fifteenth months. The number of cases retreated between 12 and 15 months is to a large extent composed of cases which had been showing unsatisfactory progress in the reduction of the quantitative titer reading, and which at the end of 1 year were routinely retreated.

It is interesting that through the eighth month, 300,000 units of penicillin plus 320 mg. arsenoxide showed a relatively low percentage of failures. By the fifteenth month, however, this schedule had a retreated rate of over 30 percent. This trend is probably due to relapses being delayed by the addition of arsenoxide to the penicillin schedule. From this experience, it can be seen that the effectiveness of any method of treatment as judged by results during the first 6 months of

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[1] Group A—Chicago, Cleveland, and New York.

Group B—Norfolk, Durham, Charlotte, Augusta, Savannah, Jacksonville, S. Charleston, Ann Arbor, Hot Springs, St. Louis, Memphis, Nashville, and Chattanooga.

CHART I

STATUS OF CASES OBSERVED 12-15 MONTHS AFTER TREATMENT

BY METHOD OF THERAPY

GROUP A AND GROUP B FACILITIES

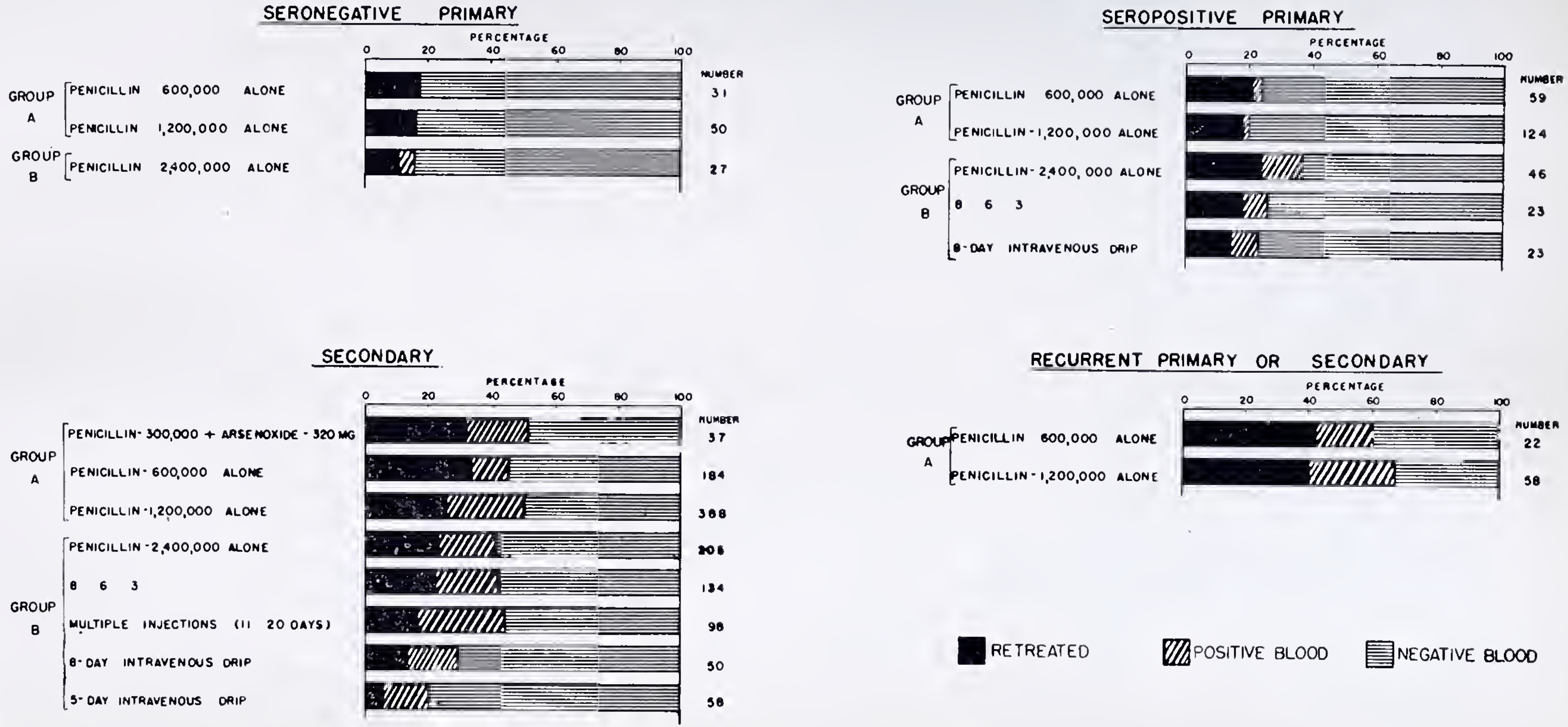
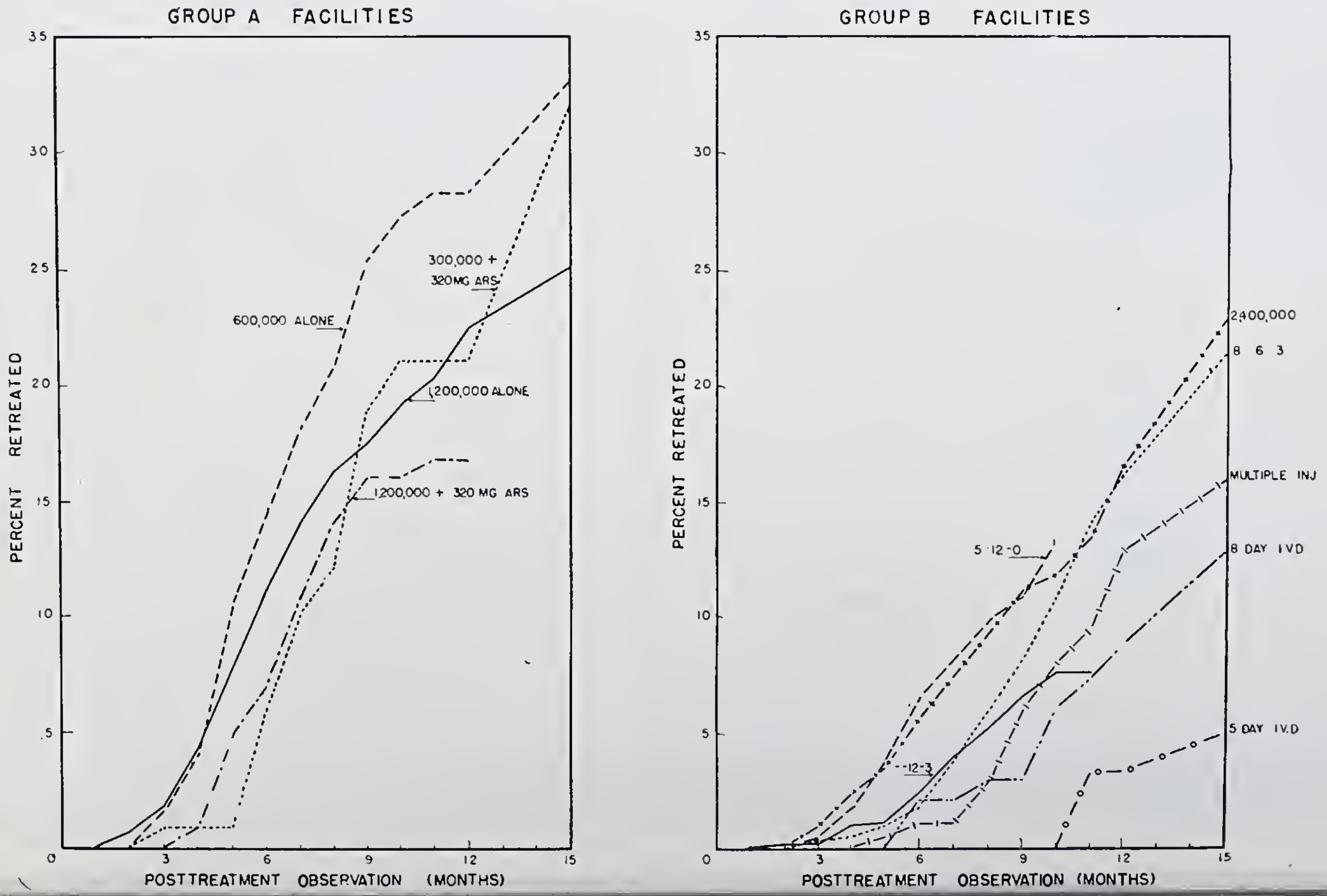


CHART II

CUMULATIVE PERCENTAGE OF PREVIOUSLY UNTREATED SECONDARY SYPHILIS RETREATED

FOR CLINICAL OR SEROLOGIC RELAPSE, SERORESISTANCE OR REINFECTION



follow up may not be borne out by its effectiveness after 12 or 15 months of observation.

In group B facilities, at the end of 15 months significantly fewer cases were retreated following 5–day intravenous drip (5.0 percent) than following 2,400,000 units of penicillin, 600,000 units of penicillin combined with 8 arsenoxide and 3 bismuth injections (8–0–3), or multiple injection over 11 to 20 days (22.9, 21.5, and 16.0 percent, respectively). As will be shown in a later table, the fatality rate from 5–day intravenous drip was 1 per 149 cases treated. With the advent of penicillin, 5–day intravenous drip was discontinued in favor of the less toxic penicillin treatment. Among the treatment technics utilizing penicillin, very little difference was noted at the end of 15 months in the percentage of failures between 2,400,000 units of penicillin (22.9) and 8–6–3 (21.5).

The two more recent treatment schedules employing 1,200,000 units of penicillin plus 5 injections of arsenoxide, one with 3 injections of bismuth (5–12–3), the other without bismuth (5–12–0), shown in this chart have had only 10–11 months' follow-up. With only 7.6 percent failures, 5–12–3 was significantly better than 5–12–0 (13.3 percent failures) in the percentage of cases retreated by the tenth month. It would appear that the addition of 600 mg. of bismuth to the 5–12–0 routine resulted in a significant difference in the number of secondary syphilis cases retreated. However, until cases treated by these two methods have had follow-up observation for a longer period of time, it cannot be determined whether the bismuth increased the success rate or delayed the occurrence of treatment failures.

EFFECT OF PENICILLIN DOSAGE PER INJECTION AND INTERVAL BETWEEN INJECTION ON NUMBER OF CASES RETREATED

Chart III shows the number of cases retreated after 1,200,000 units of penicillin by the number of Oxford units per injection and the interval between injections. At the end of 9 months there were significantly more cases retreated after the routine of 20,000 units of penicillin every 3 hours for 8 days than under either the routine of 40,000 units every 3 hours for 4 days or the routine of 40,000 units every 6 hours for 8 days. Although this significance did not carry over into the twelfth month period, it must be pointed out that only a small proportion of the cases given the 20,000 unit per injection routine has had the opportunity to be observed as long as 12 months following treatment. There is practically no difference at any observation interval in the results obtained by the administration of 40,000 units every 3 hours for 4 days when compared with 40,000 units every 6 hours for 8 days.

CLASSIFICATION OF FAILURES AND VARIATIONS BY TREATMENT DIAGNOSIS

Of the 1,058 cases retreated as "failures" after having completed any rapid therapy routine, 66.5 percent were retreated on the basis of clinical relapse. The remaining 33.5 percent were retreated for the following reasons:

8.0 percent, probable reinfection;
8.7 percent, serologic relapse (negative to positive);
11.2 percent, increased titer;
5.6 percent, seroresistance.

Because of differing classifications of treatment failures, timing for retreatment, and employment of different schedules of therapy among rapid treatment centers, it was felt that comparisons of types of failures by various methods of treatment could not be made. Moreover, those centers with the best follow up are apt to discover failures sooner, on the basis of serology, and thus have the opportunity to initiate retreatment before clinical evidence appears. Group A facilities retreated a significantly greater proportion of the cases on the basis of increased titer than the 13 rapid treatment centers included in group B.

Chart IV shows by admission diagnosis the cumulative percentage of total cases retreated, with breakdowns showing the percentage retreated for clinical relapse and the percentage retreated for probable reinfection. Only cases from group A facilities treated prior to January 1, 1945, were included in the preparation of this chart. All methods of treatment at group A facilities were included in the compilations.

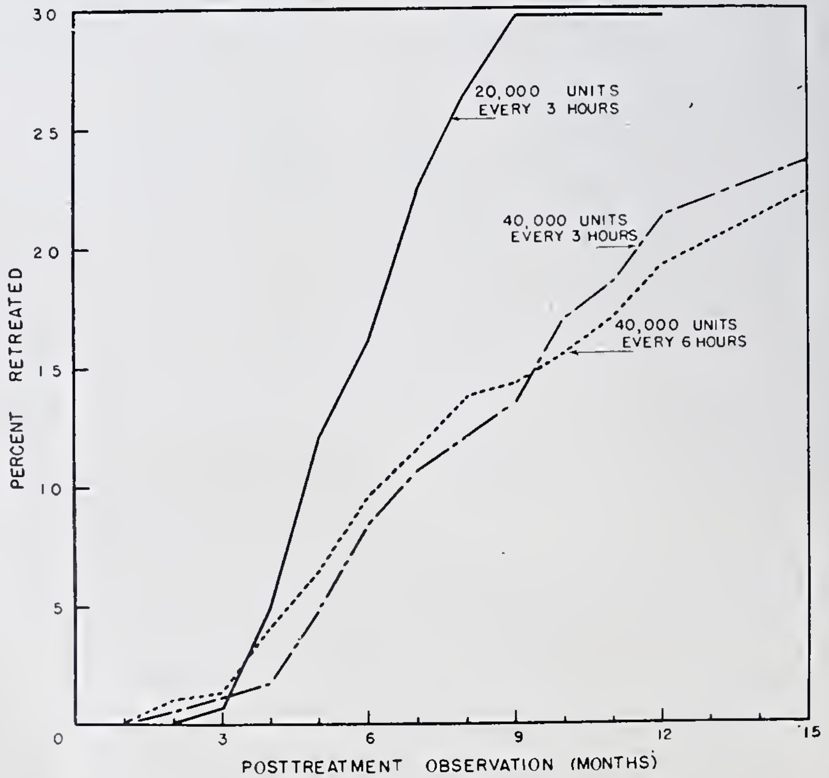
Chart IV–A shows that 15 months following rapid therapy, significantly more cases were retreated among patients who had a diagnosis of recurrent primary or secondary syphilis at admission than among the previously untreated seronegative primary, seropositive primary, or secondary syphilis patients. Further, significantly more cases were retreated among the secondary syphilis group than among the seropositive or seronegative primary syphilis patients. In observing the results at 15 months, it is apparent that the earlier treatment is begun the better the chances against relapse. A higher reinfection rate among seronegative primary cases explains the greater proportion in this group retreated between the third and seventh months as compared to the seropositive primary or secondary syphilis cases.

Chart IV–B shows that retreatment for clinical relapse follows the same general trends established in chart IV–A for the total group. The seronegative primary cases retreated, however, do not show as marked a rise during the first 6 months as was observed in chart IV–A.

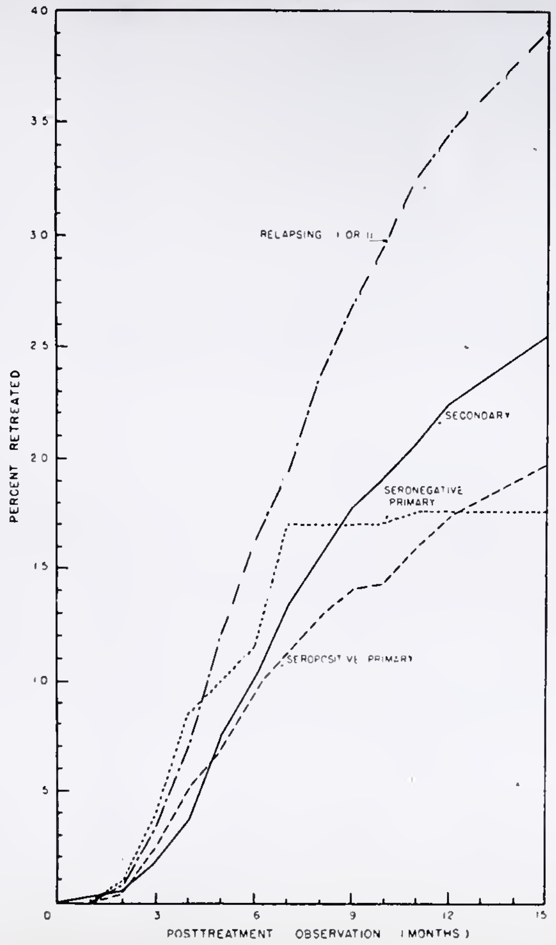
It would appear from chart IV–C that the earlier the stage of syphilis diagnosed at the time of treatment the greater the chance of reinfection. The significant difference between primary and secondary syphilis in the proportion of probable

CHART III

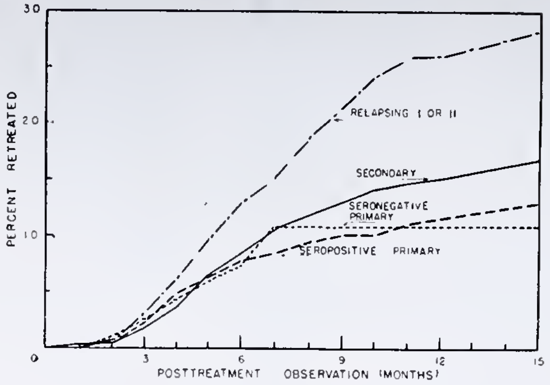
CUMULATIVE PERCENTAGE OF CASES RETREATED
FOLLOWING VARIOUS TIME-DOSAGE SCHEDULES OF 1,200,000 UNITS OF PENICILLIN
FOR SECONDARY SYPHILIS



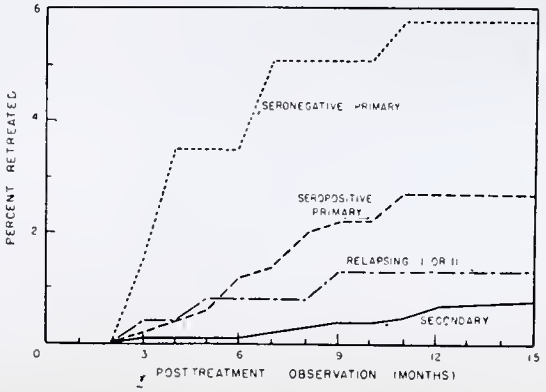
4A CUMULATIVE PERCENTAGE RETREATED
FOR CLINICAL OR SEROLOGIC RELAPSE, SERORESISTANCE OR REINFECTION
BY DIAGNOSIS



4B CUMULATIVE PERCENTAGE RETREATED FOR CLINICAL RELAPSE
BY DIAGNOSIS



4C CUMULATIVE PERCENTAGE RETREATED FOR PROBABLE REINFECTION
BY DIAGNOSIS



reinfections reported is explained in part by the ability of the clinician to consider the site of the original lesion in determining whether the case involved is to be classified as a clinical relapse or as a reinfection. There are three possible explanations for the significant difference between seronegative and seropositive primary syphilis. These theories are as follows: (1) Immunity—presumedly cases treated in the earlier stages are more susceptible to reinfection; (2) definition—by definition a reinfection can only be determined if the treated patient has become seronegative; (3) reinfection by wife, paramour, or other person who has remained untreated and infectious. This last possibility suggests the need for more effective contact investigation and better instruction of patients, including a discussion of the danger of reinfection by partners.

REACTIONS TO TREATMENT

Table 1 shows the number of severe reactions and deaths by method of therapy among cases treated through March 15, 1945.

It will be noted that the reaction rate in schedules employing penicillin alone or in combination with small amounts of arsenoxide and bismuth is significantly less than in schedules utilizing arsenoxides as the principal drug. Of the schedules not using penicillin, multiple injection schedules had significantly fewer reactions than the intravenous drip technic.

There were no deaths due to treatment schedules employing penicillin alone. Where penicillin was combined with 8 injections of arsenoxide and 3 injections of bismuth there was one death per 4,312 cases treated. The death rate was considerably higher under the arsenoxide routines, where one death occurred for every 149 cases treated with 5-day intravenous drip, one per 1,238 cases treated with 8-day intravenous drip, and one per 1,873 patients treated by multiple injection.

SUMMARY AND CONCLUSIONS

1. A progress report is given on the results, based for the most part on 12 to 15 months' observation, of the treatment of early syphilis by various intensive methods employing penicillin alone and with adjunctive drugs, in varying dosages and treatment intervals. Reported also are certain intensive arsenotherapy schedules. The report is based on observation of approximately 8,000 patients treated in rapid treatment centers.

2. Wide variation was noted in the effectiveness of treatment begun in the various stages of early syphilis. Treatment begun in the primary stage gave considerably better results than that begun in the secondary stage or after relapse from a previous course of intensive therapy.

3. The report shows that in the series of cases given 15 months' posttreatment observation there was no significant difference between the schedules evaluated using penicillin alone and those in which penicillin in smaller doses was administered with adjunctive arsenoxides.

TABLE 1.—*Comparison of schedules of therapy for syphilis used in rapid treatment centers in terms of severe reactions and deaths through March 15, 1945*

Schedules of therapy	Total cases	Cases with severe reactions		Deaths	
		Number	Rate per 1,000	Number	Rate per 1,000
Penicillin alone	3,569	9	2.5	0	0.0
Penicillin-mapharsen-bismuth (8-6-3)	17,249	153	8.9	4	.2
Five-day intravenous drip	1,041	78	74.9	7	6.7
Eight-day intravenous drip	3,713	256	69.0	3	.8
Multiple injection, 11–20 days	1,873	77	41.1	1	.5

4. There was no essential difference between the results observed in the use of 600,000 units of penicillin and schedules employing 1,200,000 or 2,400,000 units of penicillin alone. However, among a group of cases having a maximum observation period of 10 months, the 1,200,000 units of penicillin with adjunctive arsenoxide and bismuth (5–12–3) schedule gave better results at that observation point than the same schedule with the bismuth omitted (5–12–0), and better results than any other schedule employing penicillin. It would seem from this evidence that the effectiveness of any penicillin treatment method for early syphilis is probably enhanced by the inclusion of bismuth.

5. At the end of, and throughout the observation period of 12 months, there was no significant difference between the results obtained from 40,000 units of penicillin administered every 3 hours for 4 days, and 40,000 units every 6 hours for 8 days.

6. There were no deaths attributable to treatments using penicillin alone. When penicillin was combined with small amounts of arsenoxide and bismuth, the mortality rate was 1 death in 4,312. With intensive arsenotherapy, the mortality rate ranged from 1 per 149 cases in 5-day intravenous drip to 1 per 1,873 cases treated by multiple injection.

7. Because of the toxicity and relatively high mortality rate of massive arsenotherapy, such treatment methods were largely discontinued by rapid treatment centers participating in this study when preliminary evidence showed that considerable promise might be expected of schedules relying principally on penicillin. While the present report cannot be considered anything but preliminary, the present availability of penicillin suggests that any form of intensive intravenous arsenotherapy should be used only with the utmost caution. Our present incomplete knowledge of final outcome of early syphilis treated with schedules relying principally on penicillin suggests that all patients so treated should be urged to return periodically for diagnostic check-up.

The Adequate Treatment of Gonorrhea

J. R. Heller, Jr., Medical Director
Chief, Venereal Disease Division
United States Public Health Service

The purpose of this report is threefold: it presents data from the most recent U. S. Public Health Service investigations on the use of penicillin in gonorrhea by short treatment schedules; it reviews data from certain previous studies of the U. S. Public Health Service; and it indicates the practicability of reducing the incidence of gonorrhea through the use of these short schedules of treatment in the private physician's office.

That penicillin is an effective therapeutic agent for gonorrhea seems well established; and there is general agreement that, with the commercial penicillins as now produced, satisfactory results may be expected with a total dosage of 200,000 Oxford units or more. The major consideration remaining at the moment concerns the best schedule for administering the penicillin. Ideally, the best schedule would require a minimum of time and a minimum of special equipment without any sacrifice of therapeutic efficacy. Ideally, too, the most desirable schedule

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would be one administered on an ambulatory, outpatient basis, and would combine safety, convenience, and a minimum of discomfort for the patient, so that even though the first attempt were to fail, it would prevent the development of complications.

The investigations under report were made by medical officers in charge of several hospitals established by State and Federal agencies for the intensive treatment of venereal disease. Two treatment schedules were studied: one that could be completed in 2 hours and another that required 3 hours. There were 396 patients studied: 248 white and 148 Negro, 108 male and 288 female. In all patients the diagnosis was confirmed by a positive culture. Eighty-three percent of the patients were observed 10 days or longer; 17 percent, 6 to 9 days. To be considered "cured," the patient had to be clinically and bacteriologically free of infection, i. e., without signs or symptoms and with three or more cultures—all negative—during the observation period.

The 2-hour schedule was administered to 255 patients. They received 200,000 units of sodium penicillin dissolved in 6 cc. of water in three intramuscular injections at 0 hour, 50,000 units (1.5 cc.); at 1 hour, 50,000 (1.5 cc.); and at 2 hours, 100,000 (3 cc.).

The 3-hour schedule administered to 141 patients called for the same total dosage administered intramuscularly as follows: at 0 hour, 40,000 units (1.2 cc.); at 1 hour, 40,000 (1.2 cc.); at 2 hours, 40,000 (1.2 cc.); and at 3 hours, a final injection of 80,000 (2.4 cc.).

No patient showed evidence of toxic reaction, and although the injections were given at hourly intervals, the very short span of treatment was most acceptable both to the patient and to the medical and nursing personnel.

Among the patients observed 10 days or longer, 94 percent were cured on the 2-hour schedule and 96 percent on the 3-hour schedule. Although there were no significant differences, the rate of cure on the 2-hour schedule was higher in the Negro than in the white, higher in the female than in the male, and higher in the previously untreated than in the previously treated.

These results approximate those previously reported in a study (*1*) of 1,060 cases treated by cooperating private physicians, clinics, and rapid treatment centers with a single intramuscular injection of 200,000 Oxford units of calcium penicillin in peanut oil and 4.8 percent beeswax. Ninety-two percent of the cases with a positive culture before treatment were classified as cured following treatment.

In this series of 1,060 cases, statistical evaluation did not reveal any significant difference in cure rates resulting from the single injection of penicillin-oil-beeswax as compared with the 2- and 3-hour treatment schedules employing aqueous solutions of sodium penicillin (92 percent for the single injection method and 94 percent and 96 percent, respectively, for the 2- and 3-hour schedules.) Certain of the participating physicians complained of the technical difficulty of administering penicillin-oil-beeswax suspensions—an objection not raised in connection with the intramuscular administration of sodium penicillin solutions. Recent chemical and/or technical developments may in the future, however, serve to promote the more general use of the oil-beeswax suspension of penicillin.

Of the 141 patients treated on the 3-hour schedule (110 of whom were followed for 10 days or more, and 31 for at least 6 but less than 10 days), there were four failures—all detected by the sixth day. Of 255 patients treated on the 2-hour schedule (220 of whom were followed for 10 days or more and 35 followed for at least 6 days), 11 failures were detected by the sixth day with two additional failures observed by the tenth day. Thus, over the 10-day period, 15 of the 17 failures were detected within the 6 days following treatment. Cultures of secretions from each of the failure cases revealed the persistence of gonococci, the final identification of the organism being made by sugar fermentation tests in all except four instances, where the strain was lost in subculturing to the carbohydrate mediums.

Satisfactory results in the treatment of onorrhea on an ambulatory outpatient asis have also been established. True, ince the opportunity for reinfection of hese uncontrolled patients is greater han among hospitalized patients, it is ften impossible to differentiate between ailure to respond to treatment and reinection during the posttreatment observaion period. Of 126 gonorrhea patients reated on an ambulatory outpatient asis with a 3-hour penicillin schedule 4 hourly injections of 50,000 units each), he cure rate was 85 percent. A large ercentage of the patients were observed or 20 days and approximately half the ailures were detected within the first 10 ays of posttreatment observation. Some art of the lower cure rate among these mbulatory outpatients may be due to renfections among those "cured." It could lso be said that the high cure rate among he hospitalized patients reported here is ue to the relatively short period of postreatment observation. However, in studes conducted at the U. S. Penitentiary t Terre Haute, Indiana (2), gonorrhea atients treated with penicillin were oberved for a period of 6 months followng therapy. Although these patients vere carefully and repeatedly examined, oth physically and bacteriologically, no it of evidence was adduced to indicate hat the gonorrheal infection had not een completely eradicated. It was, of ourse, unlikely that these patients prisoners) would become reinfected. This would lend some weight to the position that reinfections are, in part, responible for the lower cure rate among mbulatory outpatients.

The schedules presented in this report ppear adequate, not only from the point f view of the resulting cure rates, but lso from the point of view of adaptability o office hours of most private physicians. Thus, they appear to provide conditions which will permit physicians to expand heir activities in the treatment of gonorrhea. In order to make sodium penicillin treatment even more convenient, a study is under way to test the efficacy of two further treatment schedules: one employing two injections in 1 hour (100,000 units at 0 hour and 100,000 units at the end of 1 hour); and a second in which three injections of 67,000 units of penicillin are given at ½-hour intervals over a period of 1 hour. These studies have not advanced sufficiently to justify a preliminary report at this time.

There are today some 175,000 private physicians practicing medicine in the United States. Their services are widely available. Their code of ethics is assurance that their service is confidential and thorough. In addition, there are clinics financed by universities, industries, research foundations, and other private resources. Contrasted with these, the State and local health departments maintain about 3,000 clinics, only one-tenth of which operate daily. Thus, with present treatment schedules, and in particular those presented in this report, it now appears that private physicians and private agencies are in a position to bring immediate treatment to the gonorrhea patient in his home community.

However, in its broader aspects, adequate treatment, from the public health point of view, means control. Gonorrhea has long been regarded by those elements of the public in which the gonorrhea attack rate is the highest as a mere inconvenience. The wide publicity given the use of penicillin has tended to confirm this attitude. Reinfections are frequent, and, as the shortened schedules of treatment tend to encourage office treatment of gonorrhea, the problems of finding and bringing the patients' contacts to treatment are increased. Thus the responsibility falls upon the private physician, not only to cure his patient of gonorrhea, but to keep him from being reinfected. This would indicate the advisability of the private physician's making every reasonable effort to cause contacts to report to some treatment source for necessary examination. This examination of contacts should, of course, be made as soon as possible in order to prevent the spread of infection.

Moreover, many gonorrhea patients are infected with syphilis. This infection may have occurred before, after, or concurrently with the gonorrhea infection.

Both diseases respond to penicillin. The total dosage of penicillin for gonorrhea is sufficient to delay or abolish completely the appearance of a chancre, without checking the development of the Treponema pallidum in the host. Treatment for gonorrhea may, therefore, mask developing signs and symptoms of syphilis, leaving the patient with a false sense of security—an unwitting victim of the spirochete. There are no data from which it may be learned how often dual infections of gonorrhea and syphilis are acquired from one or more exposures within a short time. But as an important finding in the control of syphilis it is well to note that, during the past year, 9 percent of the total admissions to the rapid treatment centers consisted of patients infected with both syphilis and gonorrhea.

It is therefore strongly urged that the private physician treating gonorrhea include, along with the physical examinations, a serologic blood test for syphilis at the beginning of treatment and at the end of the first, second, and third months, whenever possible. In the small group of patients who apparently do not respond to treatment, the diagnosis of gonorrhea may be in error as shown in recheck of the organism on sugar fermentation mediums. Certain of the failure cases may requi quite large amounts of penicillin give over a longer period of time, and, fo this purpose, may require hospitalizatio But thus far research by the U. S. Publ Health Service has not detected strain of gonococci which remain persistentl resistant to penicillin.

The current situation with regard t adequate treatment of gonorrhea can b summarized briefly as follows: treatmen can be administered quickly and safel without hospitalization. The rate o treatment success is high. Adequat treatment, therefore, depends largely o readily accessible diagnosis and trea ment for the entire population. Privat physicians afford the widespread networ for such services.

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2. Mahoney, J. F.; Van Slyke, C. J.; Cu ler, J. C.; Blum, H. L.: Experiment gonococcic urethritis in human volu teers. Am. J. Syph., Gonor., & Ve Dis., 30: 1–39, 1946.

CURRENT LITERATURE

Note: Abstracts of any article listed below are available on request. In addition, abstracts of all articles concerned with venereal diseases or related subjects which have been published in the better known journals both here and abroad during the past 20 years are in the files. These are open to workers in the field. An asterisk (*) before a title indicates that the article is abstracted below.

CTA DERMAT.-VENEREOL., STOCKHOLM

The sedimentation rate in syphilis. T. Stryjecki. 21 : 605, Aug. 1940.

M. J. PUB. HEALTH, NEW YORK

Comparison of observed and expected deaths in Selective Service registrants with negative and positive serologic tests for syphilis. Murray C. Brown. 36 : 219–228, Mar. 1946.

The use of 2 x n Chi square in the analysis of change in age distributions. Paul T. Bruyere, Martha C. Bruyere and Geraldine A. Gleeson. 36 : 510–514, May 1946.

Case finding in the control of syphilis. Editorial. 36 : 527–530, May 1946.

Epidemiology of venereal disease. Thomas H. Sternberg. 36 : 636–638, June 1946.

M. J. SYPH., GONOR., & VEN. DIS., ST. LOUIS

The incidence of positive serologic reactions in multiple blood donors. Mary Heiss Boynton. 30 : 252–254, May 1946.

Follow-up service for private physician cases of venereal disease in Hawaii. Samuel D. Allison and Harriet Kuwamoto. 30 : 287–293, May 1946.

NN. ET BULL. DE DERMAT., PARIS

Febrile syphilis of septic type resistant to bismuth sensitive to arsenical. (Case presentation.) H. Gougerot, L. Gougerot and Sclafer. 5 : 167, July–Aug. 1945.

Jaundice and mild optic neuritis probably due to sulfonamides. M. Mansour. 5 : 175, July–Aug. 1945.

*The serology of the repatriated. M. A. Touraine and O. Kammes. 5 : 222, July–Aug. 1945.

*Stovarsol in the treatment of congenital syphilis. M. A. Touraine. 5 : 222, July–Aug. 1945.

The serology of the repatriated.—From pr. 30 to June 10, 1945, the authors exmined the blood of 6,805 persons who ad been deported to Germany after their patriation. The Meinicke test was sed. There were 85 (1.24 percent) positive and 39 (0.57 percent) doubtful. The mber of positive reactions is definitely lower than the average of 4 to 5 percent found in other routine examinations. However, it has to be taken into consideration that the examined repatriates had been screened previously in sanitation centers and that those with clinical manifestations of syphilis had been kept there. Although the exact proportion of syphilis among repatriated prisoners and deportees was not obtained in this group, the results are very satisfying.

In the discussion, Gougerot states that among 20,213 blood specimens examined there were 281 (1.40 percent) positive and 71 (0.35 percent) doubtful reactions.

Stovarsol in the treatment of congenital syphilis.—The author stresses the fact that stovarsol, although a French discovery, has not been utilized in France, whereas it has been extensively employed in foreign countries, known under the name of "spirocid." (In the United States it is called "acetarsone." Rev.)

This orally administered antisyphilitic drug has a good treponemicidal action as well as a good effect upon the serologic reactions and upon the clinical manifestations of congenital syphilis. Toxic reactions are rare.

ARCH. DERMAT. & SYPH., CHICAGO

*Keratosis blennorrhagica : Its response to penicillin. Richard Emmet. 53 : 278–280, Mar. 1946.

Tertiary syphilis. (Case reports.) Anthony C. Cipollaro. 53 : 425–426, Apr. 1946.

Keratosis blennorrhagica: Its response to penicillin.—The author describes what he believes to be the first case of keratosis blennorrhagica treated by penicillin to be found in the literature.

A white soldier, aged 21, was admitted to the hospital on Feb. 1, 1944 complaining of a painful foot and pain and swelling of the left knee. He had been treated with sulfadiazine for gonorrhea on an ambulatory basis from Jan. 5 to Jan. 10, 1944. Six days after admission to the hospital a urethral discharge was noted; the smear was positive for gonococci and sulfadiazine was given with ultimate cessation of the discharge. Pain in the knee continued, however, followed on February 28 by swelling of the right wrist, giving the impression of acute infectious arthritis. On March 20, bullae appeared on both knees, and by March 29, the feet, legs, thighs, lower abdomen, and hands contained many vesicles and pustules in addition to many hornlike lesions. A diagnosis of keratosis blennorrhagica was made. A smear obtained by prostatic massage revealed no gonococci, although polymorphonuclear leukocytes were found. Smears from the hornlike lesions also failed to disclose gonococci.

On April 3, the patient was given penicillin intramuscularly, the initial injection being 40,000 units, followed by 20,000 units every 3 hours for a total of 200,000 units (24 hours). No local treatment was used. On April 6, the lesions began to disappear, the articular pains became less severe, and by April 16, all lesions had disappeared. By June 6, the patient had completely regained his weight and was making 15-mile marches without difficulty.

ARCH. OPHTH., CHICAGO

*Hyperpyrexia in treatment of ocular conditions due to syphilis. Harry C. Knight and Walter S. Schachat. 35 : 271–279, Mar. 1946.

Hyperpyrexia in treatment of ocular conditions due to syphilis.—The authors discuss the use of the Kettering hypertherm in a Marine hospital in the treatment of ocular conditions due to syphilis, many of which ultimately result in partial or complete blindness.

In 19 cases of atrophy of the optic nerve in which the fever method was used, improvement resulted in 4 (21 percent); arrest of clinical progression of symptoms was obtained in 7 (37 percent); in 6 cases (32 percent) either there was no improvement or arrest or the ons actually seemed to occur during therap One case showed improvement in o eye, with definite progression of the d ease in the other eye; in another cas the patient was totally blind before a treatment was instituted.

Six patients were treated with the Ke tering hypertherm for syphilitic choroi itis or chorioretinitis. Rapid improv ment occurred in 4 (67 percent) of t cases; old, quiescent lesions were prese in the 2 cases showing no improvement.

Six cases of syphilitic iritis treated this method showed excellent therapeut results. It is recommended that the Ke tering hypertherm be used in conjuncti with the usual local methods of medic tion and antisyphilitic chemotherapy this disease.

The fever method was found to be al definitely beneficial in the treatment interstitial keratitis, and was most hel ful in alleviating the severe pain a photophobia often associated with th condition.

Numerous case histories are present in illustration of each type of eye disea discussed.

BRIT. M. J., LONDON

Treatment of sulphonamide-resistant gono rhea by penicillin. Robert Lees. N 4450 : 605–606, Apr. 20, 1946.

BULL. ACAD. DE MÉD., PARIS

*Synergetic action of penicillin and bismu in the treatment of experimental syphil C. Levaditi and A. Vaisman. 130 : 3 1946.

*Does orally administered penicillin prote against experimental syphilis infectio C. Levaditi and A. Vaisman. 130 : 22 1946.

*Duration of preservation of motility a virulence of syphilis spirochetes. C. Le aditi and A. Vaisman. 130 : 224, 1946.

Synergetic action of penicillin and bi muth in the treatment of experiment syphilis.—The authors treated rabbi which had scrotal syphilitic chancres wi subtherapeutic doses of (1) penicill alone, (2) bismuth alone, and (3) pe cillin and bismuth combined. Wherea treatment with either penicillin or bi muth alone did not prevent relapses n have a sterilizing effect, these two speci

ıgs, administered simultaneously, pre-
ıted relapses and sterilized the organ-
ı. From their experience, the authors
ıclude that the combined penicillin and
muth treatment seems advisable in hu-
ın syphilis.

In the discussion, Gougerot reported
ıt the clinical experience accords with
authors' experimental results. He
iewed the 6 schemes of treatment of
philis, according to an official report
ıde to the Minister of Health, as fol-
vs:

The old methods are: (1) mixed treat-
nt with arsenic and bismuth (or mer-
ry), abandoned by most physicians be-
ıse of the exceptional but incontestable
ngerous reactions caused by the arseno-
ızenes and other arsenicals; (2) bis-
ıth alone, much favored by practitioners
cause of lack of accidents; and (3)
rcury alone (in the form of Hg cya-
le) for visceral and neurosyphilis.

The three modern methods are: (1)
nicillin alone; (2) penicillin combined
th arsenicals, the method preferred in
e United States, with which, however,
talities occur even with the modern
senicals; and (3) penicillin combined
th bismuth, which is considered the
thod of choice.

**Does orally administered penicillin
otect against experimental syphilis in-
ction?**—In previously reported experi-
nts, the authors have shown that syphi-
ic infection could be prevented in rab-
s by the intramuscular administration
penicillin in adequate doses (40,000
u. per kilogram), even when the penicil-
ı was given 8 days after the inoculation
the virus. Similar experiments with
ally administered penicillin gave the
llowing results: (1) in mice, 14 per-
nt of the inoculated animals could be
otected against syphilitic infection, and
en 33 percent could be so protected if
e penicillin was administered only 8
ys after the inoculation of the syphilis
irochetes; (2) in rabbits, orally ad-
inistered penicillin had only a very mild
rative and no sterilizing effect upon
e animals with scrotal chancres and an
most negligible preventive effect even
hen the penicillin was given at the time
of the inoculation. However, the doses given to rabbits were much smaller than those given to mice (60,000 to 150,000 O. u. instead of 750,000).

Duration of preservation of motility and virulence of syphilis spirochetes.—A rabbit with a syphilitic chancre was destroyed and preserved at a temperature of +5° C. The spirochetes were examined microscopically at various intervals to determine their virulence for rabbits. After 24 hours the spirochetes were numerous and fairly motile. At this time, two rabbits inoculated with the spirochetes developed chancres on the sixtieth and twenty-seventh days, respectively. After 3 days the spirochetes were very numerous and apparently motile. Rabbits inoculated at this time developed typical chancres on the fiftieth day. After 5 days there were a few immotile spirochetes. Of the two rabbits inoculated at this time, one did not show any reaction after 4 months of observation, and the other developed a chancre on the fiftieth day.

BULL. U. S. ARMY M. DEPT., CARLISLE BARRACKS

*Early syphilis of the submaxillary glands. H. B. Jenkins. 5:709–713, June 1946.

Fixed arsenical eruption with bulla formation. Adolph H. Conrad, Jr. 5:726–727, June 1946

Early syphilis of the submaxillary glands.—The author reviews the literature on syphilis of the salivary glands. Eighty-five such cases have been reported up to 1944; in only four of these was the submaxillary gland alone involved, most of the cases observed being late syphilis of the parotid gland.

A case is presented of bilateral retention cysts of the submaxillary glands due to early syphilis. A white man, aged 23, was admitted to the Station Hospital with a slowly progressive swelling and tenderness of 3 weeks' duration in both submaxillary regions. He had attended the outpatient clinic for sore gums and an extraction of an abscessed tooth and 18 months previously had been hospitalized for 1 month for an acute gonorrheal urethritis which had been cured. No genital sore was recalled.

varied from 15 percent (2,400,000 units) to 62 percent (600,000 units).

2. The cumulative percentage failure at the end of 11 months with a total dose of 300,000 units of penicillin alone was 42 percent as compared with 21 percent when it was given in combination with 320 mg. of arsenoxide. The latter approximates the failure rate obtained with 1,200,000 units of penicillin alone.

3. For long durations of disease the failure rate was higher than for short durations.

4. There was no evidence of a difference between the Negro and white races by the end of 11 months. The failure rate in the female group was slightly higher than in the male.

The reversal of the blood was investigated by computing the cumulative percentage becoming seronegative on all treatment schedules. The phrase "becoming seronegative" is not intended to convey the impression of becoming and remaining seronegative, since all cases becoming seronegative in any observation period were excluded from the computations for all subsequent observation periods.

The cumulative percentage becoming seronegative by the end of the seventh month ranged from about 30 for patients receiving less than 60,000 units to about 50 for patients treated with 1,000,000 or more units on 3–hour, 7½–day schedules. Patients treated with 300,000 units of penicillin plus 320 mg. of arsenoxide had an accumulated seronegativity rate comparable to that obtained with the highest dosage of penicillin alone. However, for patients on 3–hour, 3¾–day schedules these findings were reversed. The same results were found when these rates were made specific for race and sex, but the groups were concentrated in certain clinics, and significant differences were found to exist between clinics employing the same schedule.

Among patients receiving 2,400,000 units of penicillin alone, the percentage becoming seronegative by the end of the seventh month showed a decrease with increasing duration of disease.

No serious reactions occurred in p tients treated with any of the 12 trea ment schedules reviewed. The sever treatment schedules differed significant among one another as to both the in dence and severity of Herxheimer rea tions, but no uniform trend or clear pa tern could be detected. Variations amo clinics with respect to the accuracy their clinical examinations and criter for grading may perhaps be responsib for the erratic nature of the findings.

The changing character of commerci penicillin.—Commercial penicillin is n a single substance but contains 4 differe species known as G, X, F, and K. Th relative contents of these penicillins va from time to time and in recent mont have contained a substantial proporti of penicillin K. They also differ in th in vitro and in vivo activity against variety of bacteria.

Studies of the use of penicillin K various infections indicate that it is rel tively ineffective, evidently due to the fa that it is rapidly destroyed in the body.

Commercial penicillin has also unde gone a change in the direction of increa ing purity (in units per milligram) wi a consequent decrease in "impuritie which may possibly have possessed ther peutic activity. The changes in comme cial penicillin are reflected in the fact th the results of penicillin treatment of ear syphilis have been less satisfactory sin May 1944 than prior to that date.

In view of these considerations, certa tentative plans have been adopted for t use of penicillin in the treatment syphilis in man, and the factors respo sible for the apparent decrease in effica of commercial penicillin are under inte sive cooperative study.

Treatment schedules for various typ of syphilis are recommended.

J. Florida M. A., Jacksonville

*Is the venereal disease control program danger? R. F. Sondag. 32 : 593–5 May 1946.

Is the venereal disease control progra in danger?—The author discusses the i tensive forms of therapy for the venere diseases and the limitations of some

se to investigative groups in research
titutions and rapid treatment centers
ause of the risk involved in their use.

Penicillin has brought about a complete
ange in the chemotherapeutic attack on
nereal disease, and because of its non-
xic character and its release for general
age many private physicians have be-
me increasingly interested in the treat-
nt of venereal disease. During April
this year, Florida physicians and clinics
re advised as to the 4-hour treatment
hedule of gonorrhea, and penicillin was
ade available free of charge for that pur-
se. For the first time in statistical
story in Florida, the reported cases of
norrhea have exceeded those of syphilis.

The case-holding problem may be light-
ed by the ambulatory treatment of
philis with penicillin, and at least 90
rcent of patients admitted for inpatient
re may be expected to finish the pre-
ribed course of therapy. However, the
ncooperative patient, the tendency to
ve subcurative doses of penicillin, and
e eventual relapse of some infections are
be found in the ambulatory schedule
s well as in standard therapy. The in-
reasing responsibility of civilian agen-
ies and physicians in private practice for
e care of discharged Service personnel
view of rising venereal disease rates
ince the war is emphasized.

The number of relapses found under the
ntensive treatment system and the prob-
ems of reinfection, superinfection, and
elapse are discussed at length by the
uthor, and differences in concept are de-
cribed in relation to such problems as
he occurrence of secondary syphilis with-
ut symptoms of the primary stage, the
mount of treatment considered adequate,
he lapse of time between first and second
nfections, and the rapidity of reversal of
he blood serologic test.

J. M. A. Georgia, Atlanta

Granuloma inguinale. A study of 200 cases. Gordon G. Allison. 35 : 103–107, Apr. 1946.

M. Ann. District of Columbia, Washington

Myocardial infarction in Negroes. Bernard A. Fitzgerald and Wallace M. Yater. 15 : 153–159, 198, Apr. 1946.

M. J. Australia, Sydney

The administration of penicillin. P. L. Bazeley. 2 : 497–500, Dec. 29, 1945.

Spondylitis ankylopoietica. L. J. A. Parr and Eva Shipton. 1 : 277–290, Mar. 2, 1946.

The health problems of Eastern Pacific countries. (Including venereal disease.) Reviews. 1 : 591–592, Apr. 27, 1946.

Mississippi Doctor, Booneville

Several wartime therapeutic advancements. (Bal in arsenical poison.) Joseph M. Moore. 23 : 578–580, Mar. 1946.

The stage is set. (Venereal disease control in future.) A. L. Gray. 23 : 625–627, Apr. 1946.

Nova Scotia M. Bull., Halifax

Syphilis of the stomach. With a case report. J. S. Heron and N. H. Gosse. 25 : 163–166, May 1946.

Ohio State M. J. Columbus

Public health and the treatment of early syphilis. Roy L. Kile. 42 : 593–594, June 1946.

*Relapse during penicillin therapy of syphilis. H. N. Cole, Samuel Ayers, III, J. H. Barr, Thomas Genatios, B. Held, W. W. Murphy, Don R. Printz and James Strauch. 42 : 595–598, June 1946.

Relapse during penicillin therapy of syphilis.—The authors report on 110 relapses observed while treating 730 cases of early syphilis with varying dosages of penicillin.

Serologic relapses were the most frequent, followed by combined serologic and clinical relapses, neurologic relapses, and clinical relapses with no change in titer. Case descriptions and tables are given in illustration.

Relapse varies with the amount of penicillin employed and is most common with small dosages. The relapse rates are high enough in larger dosages, however, to cause concern, particularly as employed more recently while there is still time for relapse to occur.

Follow up of cases and monthly titrated serologic tests for 1 year after complete reversal to a negative test are recommended as the best method of predicting and controlling relapse.

Sc. News Lett., Washington

Who gets streptomycin. 49 : 293, May 11, 1946.

Penicillin X may fail when swallowed. 49 : 297, May 11, 1946.

SCHWEIZ. MED. WCHNSCHR., BASEL

*Increase of venereal diseases. W. Lutz. 76 : 233, Mar. 16, 1946.

Increase of venereal diseases.—At the meeting of the Medical Society of Basel on June 21, 1945, the author reported a relative and absolute increase of syphilis and gonorrhea cases in the dermatological clinic in Basel. The curves of both diseases run parallel. After World War I there was a considerable increase, then a decrease to a never-before-seen minimum in 1941—4 cases of syphilis (all males) and about 40 cases of gonorrhea. At the end of 1943 there was a sudden marked increase. During 1944 there were 88 cases of syphilis (56 male, 32 female) and 162 cases of gonorrhea (among these, however, there were some military persons from out of town). The interned foreigners were not responsible for the increase of syphilis. Because of the fact that for some time syphilis was a rare disease, a number of diagnostic failures occurred, such the diagnosis of syphilitic lesions as ulcus of the portio, polyp of the urethra, and epithelioma of the penis. Extragenital infections increased in number. The increase of cases of gonorrhea could be attributed, in part, to sulfonamide resistance which amounted to 75 percent of the cases.

SCHWEIZ. ZTSCHR. F. PATH. U. BAKT., BASEL

*Experimental studies regarding resistance of gonococci strains to cibazol. H. Stock. 9 : 17, 1946.

Experimental studies regarding resistance of gonococci strains to cibazol.—Some years ago, Tenenberg, Tsuchiya, and coworkers published laboratory tests in which they found that strains of sulfathiazole resistant staphylococci in a synthetic medium were susceptible to urea-sodium sulfathiazole combinations whereas the two agents, used separately, did not exert a bacteriostatic effect. The possibility was considered that urea neutralizes sulfonamide-inhibitors, such as methionine and p-aminobenzoic acid (PAB).

The author experimented with cibazol (a Swiss sulfonamide preparation) because the drug showed a decreasing therapeutic effect on gonorrhea due to the creasing resistance of gonococcus strai His findings did not confirm the Americ reports that urea neutralizes the inhib ing effect of PAB. Urea in high conce trations was found to be bacteriostatic gonococci but this was not due to neutra zation of PAB. Because of these in vit findings and because of the unpleasa urea medication, these studies were d continued.

In addition, it was found that marfa (another Swiss sulfonamide preparati amino-methyl-benzol-sulfonamide) w not inhibited in its bacteriostatic effect gonococci by PAB. This may be due the different chemical structure of m fanil and other sulfonamides.

SCIENCE, LANCASTER

*The activity of streptomycin in expe mental syphilis. Wolcott B. Dunham a Geoffrey Rake. 103 : 365, Mar. 22, 19

Interference with the antibacterial acti of streptomycin by reducing agen Amedo Bondi, Jr., Catherine C. Dietz a Earle H. Spaulding. 103 : 399–401, M 29, 1946.

Brain involvement as a possible cause relapse after treatment in spirochetal lapsing fever. V. T. Schuhardt and E marie C. Hemphill. 103 : 422–423, A 5, 1946.

Canadian researches on BAL (British ar lewisite). Leslie Young. 103 : 439–4 Apr. 12, 1946.

A method for determining bacterial sistance and susceptibility to sulfo mides and penicillin. Roger D. Reid a Dorothy Trotter Anderson. 103 : 45 455, Apr. 12, 1946.

About the chemical nature of syphilis tigen. E. Fischer and F. Velasco. 10 455–456, Apr. 12, 1946.

Oral penicillin X. Manson Meads, Edw M. Ory and Maxwell Finland. 103 : 50 503, Apr. 26, 1946.

Penicillin production by a superior stra of mold. Marvin J. Johnson. J. J. St aniak, F. B. Gailey and B. H. Ols 103 : 504–505, Apr. 26, 1946.

Production of penicillin X in "submerge surface cultures. Edith Stice and Robe son Pratt. 103 : 535–537, Apr. 26, 19

The low therapeutic activity of penicillin relative to that of penicillins F, G, a X, and its pharmacological basis. Ha Eagle and Arlyne Musselman. 103 : 61 620, May 17, 1946.

Inactivation of penicillin by zinc sal Hans Eisner and Bernardo Porzecans 103 : 629–630, May 17, 1946.

The activity of streptomycin in experintal syphilis.—The striking therapeu- response following the treatment of philis with penicillin prompted the instigation of the action of streptomycin experimental syphilis.

A brief summary of the technic emyed in this study follows.

Suspensions of rabbit testes infected th the Nichols strain of Treponema palum were employed to infect rabbits by racutaneous injections in the clipped in of the back. Commencing within 3 ys, intramuscular injections of strepmycin or crystalline penicillin G were de every 4 hours for 4 days. When sions developed at the site of inoculan, their syphilitic nature was confirmed darkfield examination for spirochetes. l other rabbits were kept for 4 months, which time a suspension of the popliteal mph nodes of each rabbit was injected tratesticularly in 2 rabbits. If the stes of these rabbits remained normal e donor rabbit was judged to have been red. The streptomycin preparations nployed had potencies of 158 units per illigram to 229 units per milligram.

The smallest amounts of streptomycin that cured any of the rabbits when administered in divided doses during 4 days was 79,000 units per kilogram (375 mg. per kilogram) in one experiment and 187,000 units per kilogram (817 mg. per kilogram) in another. A similar effect was obtained with 147 units per kilogram (0.088 mg. per kilogram) of crystalline penicillin G. It may be concluded, therefore, that the preparations of streptomycin employed have antisyphilitic action but that penicillin G is more than three thousand times as effective.

SOUTH. M. J., BIRMINGHAM

Pencillin in the treatment of syphilis: results and complications. Edwin E. Barksdale. 39: 229–235, Mar. 1946.

STATIST. BULL. METROP. LIFE INSUR. CO., NEW YORK

Comparative data on the causes of death among industrial policyholders. (Including syphilis.) 27: 11, Mar. 1946.

WISCONSIN M. J., MADISON

Penicillin therapy. Wallace E. Herrell. 45: 401–406, Apr. 1946.

Epidemiologic study of a primary syphilis case. Regina M. Lind. 45: 598–600, June 1946.

Venereal disease up. (In Wisconsin.) 45: 609, June 1946.

Cases of Syphilis and Gonorrhea Reported for the First Time in States, Territori and Possessions for the First 5 Months of 1946

Area	Syphilis										Gonorrh	
	Total [1]		Primary & secondary		Early latent		Late and late latent		Congenital			
	May	Jan.–May	May	Jan.–May	May	Jan.–May	May	Jan.–May	May	Jan.–May	May	Ja M
Alabama	1,018	5,127	245	1,281	260	1,391	217	825	24	121	1,069	5,
Arizona	122	698	63	284	23	200	34	189	2	25	136	
Arkansas	883	4,469	178	1,000	364	1,723	287	1,519	54	225	605	3,
California	2,230	10,425	522	2,452	620	2,947	957	4,474	58	299	2,876	13,
Colorado	221	1,172	65	412	66	326	82	388	8	46	233	1,
Connecticut	224	897	59	215	47	179	90	369	7	31	121	
Delaware	73	471	22	194	27	146	10	75	7	13	29	
Dist. of Columbia	358	1,288	123	407	126	487	90	322	5	20	922	3,
Florida	1,563	6,360	324	1,357	615	2,655	412	1,652	58	180	1,762	7,
Georgia	1,228	7,444	245	998	330	1,656	568	4,530	85	259	1,422	5,
Idaho	43	272	20	74	6	58	12	88	3	9	40	
Illinois	1,578	10,196	523	2,832	491	3,075	530	4,023	34	266	3,047	15,
Indiana	559	2,730	130	626	90	419	151	929	14	69	328	1,
Iowa	124	735	49	286	26	194	40	194	0	12	182	
Kansas	193	834	60	281	62	231	60	292	11	30	263	1,
Kentucky	639	3,115	250	1,400	149	789	138	567	17	100	750	3,
Louisiana	1,909	8,048	517	2,220	453	2,085	253	1,159	77	308	1,282	6,
Maine	98	382	49	200	18	44	24	106	3	14	92	
Maryland	610	3,351	203	999	130	753	164	760	5	58	404	2,
Massachusetts	428	2,415	149	978	0	0	268	1,351	11	86	319	2,
Michigan	1,473	7,296	330	1,896	383	1,841	548	2,488	33	174	1,048	5,
Minnesota	163	708	52	228	24	107	79	309	1	22	209	1,
Mississippi	2,165	10,736	876	4,046	644	3,403	541	2,815	104	472	3,813	18,
Missouri	1,029	5,275	275	1,438	394	1,988	316	1,663	28	131	792	3,
Montana	23	136	4	42	12	37	1	21	2	4	25	
Nebraska	236	1,025	41	227	51	264	95	349	11	34	140	
Nevada	31	233	9	46	0	0	7	106	1	7	23	
New Hampshire	27	110	7	28	1	16	13	55	6	10	48	
New Jersey	770	4,046	142	778	292	1,399	305	1,729	21	118	460	2,
New Mexico	105	646	33	165	37	193	32	263	3	25	94	
New York	3,641	15,725	746	3,391	904	4,123	1,882	7,708	81	394	[2] 2,250	[2] 9,
North Carolina	725	3,773	358	1,730	235	1,366	94	504	38	173	1,377	6,
North Dakota [3]	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Ohio	1,685	8,307	489	2,477	498	2,523	650	2,987	48	259	604	3,
Oklahoma	569	2,898	145	671	218	969	140	715	25	157	1,105	4,
Oregon	100	581	27	164	18	89	43	256	3	13	147	
Pennsylvania	1,356	6,176	311	1,429	429	1,976	508	2,111	46	280	[4] 581	[4] 2,
Rhode Island	113	558	22	143	11	49	61	247	7	28	44	
South Carolina	711	3,092	263	1,178	253	1,038	144	610	24	135	962	4,
South Dakota	41	187	12	71	9	36	16	66	3	13	63	
Tennessee	942	5,830	274	1,750	363	2,128	281	1,812	21	113	1,994	9,
Texas	1,147	4,942	367	1,631	502	2,006	217	1,007	59	217	1,381	6,
Utah	44	268	18	96	6	47	20	120	0	5	72	
Vermont	22	107	15	53	1	12	4	33	2	8	32	
Virginia	1,165	5,334	296	1,454	451	2,160	365	1,505	33	147	1,169	5,
Washington	228	1,127	81	319	61	292	71	416	5	29	449	1,
West Virginia	599	31,181	245	1,529	168	776	130	682	26	97	512	3,
Wisconsin	235	1,199	58	286	78	274	81	539	3	10	139	
Wyoming	30	120	4	32	7	33	15	53	2	2	26	
Total U. S.	33,476	164,054	9,296	45,794	9,953	48,503	11,046	54,981	1,119	5,248	35,441	167,
Alaska	8	54	-----	5	6	18	-----	19	-----	5	71	
Canal Zone	40	151	8	27	6	34	20	75	2	4	89	
Hawaii	94	420	7	30	7	30	75	323	5	35	73	
Puerto Rico	705	3,927	96	503	255	1,446	164	1,003	189	966	511	2,
Virgin Islands	8	36	2	6	2	19	3	8	1	3	15	
Total U. S. and Possessions	34,331	168,642	9,409	46,365	10,229	50,050	11,308	56,409	1,316	6,261	36,200	170,

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[1] Includes "not stated."
[2] New York City only.
[3] No report for May.
[4] Philadelphia and Pittsburgh only.

U. S. GOVERNMENT PRINTING OFFICE: 1946

DOCUMENTS SECTION

The JOURNAL of VENEREAL DISEASE INFORMATION

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Special Methods Issue

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FEDERAL SECURITY AGENCY
United States Public Health Service

FEDERAL SECURITY AGENCY

United States Public Health Service

THOMAS PARRAN, *Surgeon General*

Editor: J. R. HELLER, Jr., *Medical Director*
Chief, Venereal Disease Division

Approved by the Director, Bureau of the Budget, as required by Rule 42, of the Joint Committee

◆

Printing Error

As a result of a transposition of lines in printing, an error appears in the Septemb issue of the Journal of Venereal Disease Information on page 217 of the artic entitled "Results of Rapid Treatment of Early Syphilis" by J. R. Heller, Jr., Medic Director. Treatment schedule No. 3 should read as follows:

"3. 1,200,000 units of penicillin (20,000 q. 3 hrs. for 8 days; 40,000 q. 6 hrs. for days; or 40,000 q. 3 hrs. for 4 days) with no conjunctive drugs."

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Editorial

In a process so highly organized as national venereal disease control, mportant changes in one part of the program inevitably require that hanges be made in other parts, if proper balance is to be maintained.

An obvious need, for example, is development of procedures whereby hysicians may be kept informed of new diagnostic and treatment methods nd of the facilities that have been provided for their application. Largely rom this informative process will come the solution to a second great eed—wider participation by private physicians in the control program.

The refresher course for physicians held jointly by Emory University nd the Georgia State Health Department as described by Heyman in this ssue is representative of many that have been held already this year and f many more that are planned to meet this need. As in the case of the Georgia program, most are "pilot" efforts which seek to chart a course or other and better plans.

The physician cooperation plan described by Hollister is equally exploraory. While its primary purpose is to utilize the private physician for etter case finding, it can hardly fail also to obtain better general undertanding of the control program and of the newer treatment methods mong the physicians who participate. To our knowledge, at least three ther important health jurisdictions contemplate similar programs. Unoubtedly others will be started when health officers read of the Mississippi cheme in these pages.

Most State and local health departments realize that even the most miraculous" new treatment discoveries will have relatively little effect n the total problem of venereal disease control unless patients can be ound early enough to prevent further spread of disease. Experimentation nd evaluation are needed in this aspect of control no less than in diagnosis nd treatment. The independently developed schemes for use of telerams to find new cases or to encourage voluntary reporting for osttreatment check-up reported from San Francisco and Chicago and the se of registered letters in New York are representative of the thought eing given this problem throughout the country today.

Certain methods of follow-up, locating, and persuasion are equally useful n case finding and case holding. Methods that were relatively successful n the days when case holding was a major problem are being reexamined y health departments and adapted, where possible, to present-day needs.

Bold experimentation and adaptation and full reporting are needed if he other aspects of venereal disease control are to keep abreast of the hanges and improvement in treatment.

Self-Interview Forms in Private Physician Contact Reporting—A New Technic in Case Finding

A Preliminary Report

William G. Hollister, Senior Assistant Surgeon, United States Public Health Serv

Obtaining contact information from the venereal disease infected patients of private physicians still is one of the major problems of venereal disease control. The failure to discover and treat infection among these contacts leaves an unchecked source of infection for the general population that may well serve to undermine other efforts at control.

Several ingenious and well-planned systems have been devised and investigated to meet this need. In some areas, trained medical social workers interview the patients of private physicians either through requests initiated by the private physician himself or through the follow-up, with their doctor's permission, of patients named on morbidity report cards or named on laboratory lists of those with positive serologic tests for syphilis. Other health jurisdictions depend on professional education and the provision of follow-up and case-finding services to the private physicians to induce doctors to spend time to obtain contacts by interview. Other groups pay private physicians for contact information obtained and submitted to the health department for investigation.

When several of the above systems were submitted for comment and approval to various private physicians in Mississippi, we met with opposition to social workers inserting themselves into the patient-doctor relationship. Disapproval was also voiced of paying doctors to obtain contacts. The various methods of inducing doctors to interview for contacts were rejected as impractical in the average doctor's office. Some doctors frankly resented "lifting patients' names" from morbidity reports or blood test reports in order to force the doctor to cooperate.

At this point, we felt it wise to disca the systems devised by various pub health officials and to attack the probl instead from the viewpoint of the priva physician and the problems he fac Accordingly, personal interviews we obtained from 50 physicians at vario points about the State in both rural a urban practices. These interviews in cated to us the following principal ty of objections that any contact intervie ing system must satisfy in order to acceptable to the private practitioner:

1. "I don't have the time."
2. "I don't want to embarrass myself the patient."

   "The average venereal disease tient comes to me because he wa confidential treatment with questions asked. I don't want get involved in questions on tients' sex conduct. I don't wa the confidential patient-doctor lationship broken."
3. "I don't want my patients' names my name going in on contact ports." (Mississippi does not port venereal diseases by name present.)
4. "I don't want any health departme workers to know my patients get involved in visiting then (This objection was voiced stro est in small towns and rural are where the contact investigato duties are so well known that visit would result in widespre gossip.)

Every physician visited acknowledg that such interviewing and contact tr ing was vital to the control of venereal diseases.

Following through on our philosophy be guided by the private physicians'

From Mississippi State Board of Health.

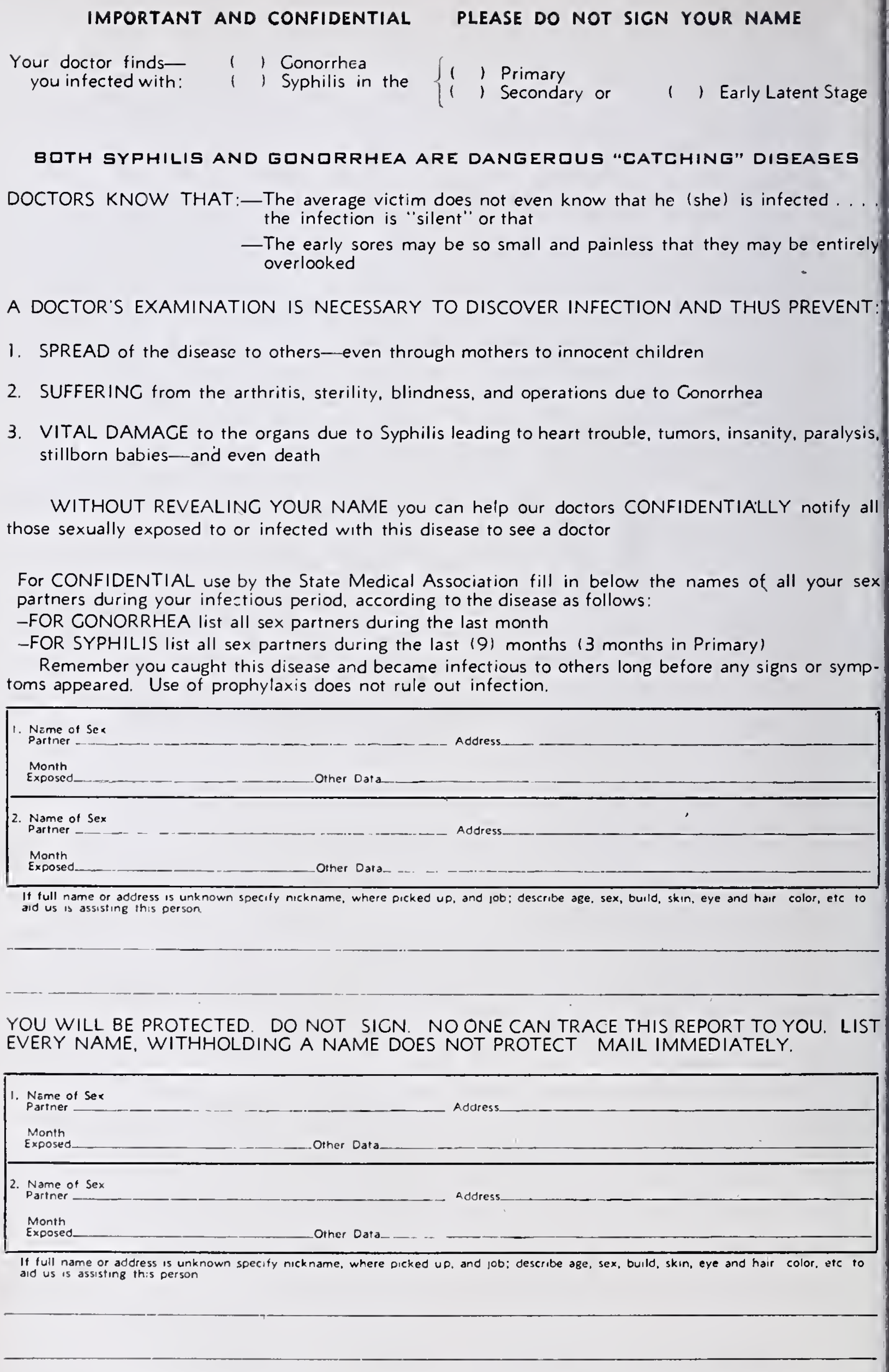
udes, we took each objection listed ove at face value and proceeded to vise a system of private physician con- t reporting to meet the objections iced. The result was a system based a patient-educating self-interview m (fig. 1) which (*a*) takes up little the doctor's time, (*b*) does not require her the patient's or the doctor's name, d (*c*) avoids any embarrassing scene tween doctor and patient by putting e interview entirely in the hands of e patient. In addition, a "Confidential tice of Exposure to Communicable sease" (fig. 2) was developed which uld be mailed out from such an im- rsonal place as the capital city of the ate (thus not involving any local ople). This notice (*a*) does not reveal e identity of the suspected disease to yone opening the envelope by mistake to a suspicious husband or wife, (*b*) rries the identity of the disease to the spect's doctor in code, and (*c*) pro- des its own social pressure to induce e contact to seek out his doctor, be amined, and report the results of his sit on an enclosed "Patient's Coopera- n Notice" (fig. 2).

In figure 1 is shown the face of the lf-interview form. Note that the form mits the stages and diseases for which terviewing is desired. The doctor sing the form is instructed to check the agnosis and hand the form to the tient as he is leaving, saying, "Take is with you and read it. If you think is necessary, fill out the questionnaire nd drop it in the mail." These words nd this timing puts the cooperation en- rely on the patient and does not insert e doctor into the sex life of his patient. his technic depends on the educational aterial on the form to induce the patient fill out and mail the form as a strictly ersonal, and thus completely confi- ential matter. The request "Do not gn your name" further assures the atient of the protection afforded him. he form itself folds up into a self-ad- ressed prepaid envelope addressed to the tate Medical Association, which the atient will recognize as an official re- utable organization of doctors in the State. Note that any information requested was reduced to absolute minimum to simplify cooperation.

When the self-interview forms are received at the post office box of the State Medical Association in the capital city of the State, a secretary transfers the names and addresses of contacts named in handwriting on to plain, white envelopes which carry no return address. Into each of these envelopes is placed a "Confidential Notice of Exposure to Communicable Disease" (see fig. 2) on which the month of exposure and the code number of the disease to which the suspect has been exposed have been entered. Also in the envelope is placed a self-addressed, prepaid envelope of smaller size which can be used to carry the detached "Patient's Cooperation Notice" back to the State Medical Association. The code employed is based on the position of the disease in the list of reportable diseases on the "Monthly Numerical Morbidity Report Card" which is in the hands of every physician, i. e., gonorrhea is ninth in the list and therefore coded as 9.

When the suspect receives his confidential notice of exposure through the mail, he is instructed to take it with him to his doctor in order that he may be appropriately examined. At the suggestion of several doctors and public health workers, the cooperation notice feature was attached in order to have some measure of the efficiency of the exposure notice by mail system and to detect and follow up noncooperators. As promised on the exposure notice, in terms that place social pressure on the patient, a follow–up visit is made to all who do not mail back a cooperation notice within 2 weeks. Epidemiologic report forms are made out on all patients thus delinquent and are forwarded to the local health unit for investigation. This inserts local health personnel into the scene only after the contact has failed to respond within a reasonable time to a confidential notice by mail.

This system was presented individually to the members of the Council of the Mississippi State Medical Association in the fall of 1945, and permission



IMPORTANT AND CONFIDENTIAL PLEASE DO NOT SIGN YOUR NAME

Your doctor finds— ( ) Gonorrhea
you infected with: ( ) Syphilis in the { ( ) Primary
( ) Secondary or ( ) Early Latent Stage

BOTH SYPHILIS AND GONORRHEA ARE DANGEROUS "CATCHING" DISEASES

DOCTORS KNOW THAT:—The average victim does not even know that he (she) is infected . . . . the infection is "silent" or that

—The early sores may be so small and painless that they may be entirely overlooked

A DOCTOR'S EXAMINATION IS NECESSARY TO DISCOVER INFECTION AND THUS PREVENT:

1. SPREAD of the disease to others—even through mothers to innocent children
2. SUFFERING from the arthritis, sterility, blindness, and operations due to Gonorrhea
3. VITAL DAMAGE to the organs due to Syphilis leading to heart trouble, tumors, insanity, paralysis, stillborn babies—and even death

WITHOUT REVEALING YOUR NAME you can help our doctors CONFIDENTIALLY notify all those sexually exposed to or infected with this disease to see a doctor

For CONFIDENTIAL use by the State Medical Association fill in below the names of all your sex partners during your infectious period, according to the disease as follows:
–FOR GONORRHEA list all sex partners during the last month
–FOR SYPHILIS list all sex partners during the last (9) months (3 months in Primary)

Remember you caught this disease and became infectious to others long before any signs or symptoms appeared. Use of prophylaxis does not rule out infection.

1. Name of Sex Partner ____________ Address ____________
Month Exposed ____________ Other Data ____________

2. Name of Sex Partner ____________ Address ____________
Month Exposed ____________ Other Data ____________

If full name or address is unknown specify nickname, where picked up, and job; describe age, sex, build, skin, eye and hair color, etc to aid us is assisting this person

____

____

YOU WILL BE PROTECTED. DO NOT SIGN. NO ONE CAN TRACE THIS REPORT TO YOU. LIST EVERY NAME, WITHHOLDING A NAME DOES NOT PROTECT MAIL IMMEDIATELY.

1. Name of Sex Partner ____________ Address ____________
Month Exposed ____________ Other Data ____________

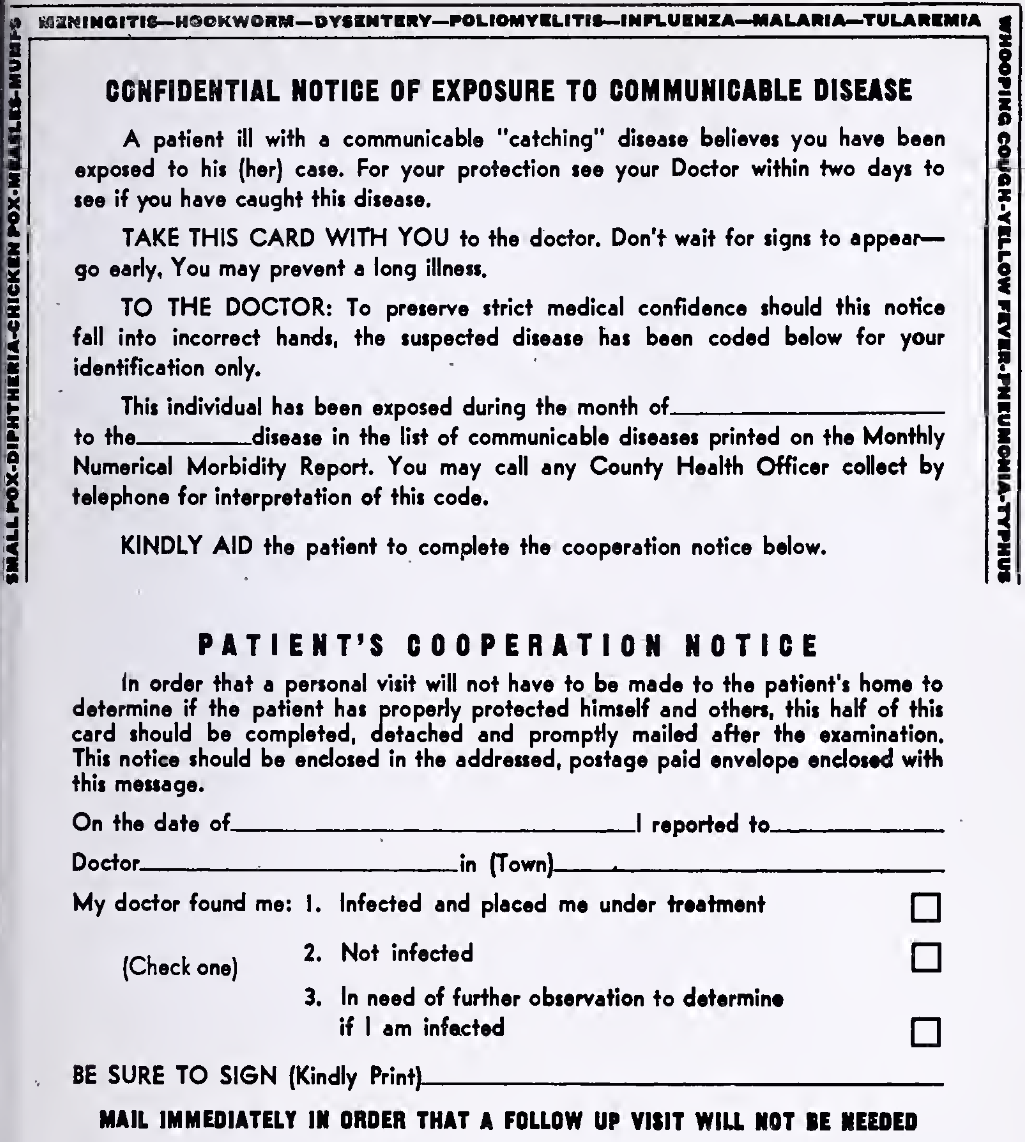
2. Name of Sex Partner ____________ Address ____________
Month Exposed ____________ Other Data ____________

If full name or address is unknown specify nickname, where picked up, and job; describe age, sex, build, skin, eye and hair color, etc to aid us is assisting this person

____

____

FIGURE 1.—Patient educating self-interview form which may be folded, sealed, and mailed as a self-addressed prepaid envelope.



MENINGITIS—HOOKWORM—DYSENTERY—POLIOMYELITIS—INFLUENZA—MALARIA—TULAREMIA

SMALL POX-DIPHTHERIA-CHICKEN POX-MEASLES-MUMPS

WHOOPING COUGH-YELLOW FEVER-PNEUMONIA-TYPHUS

CONFIDENTIAL NOTICE OF EXPOSURE TO COMMUNICABLE DISEASE

A patient ill with a communicable "catching" disease believes you have been exposed to his (her) case. For your protection see your Doctor within two days to see if you have caught this disease.

TAKE THIS CARD WITH YOU to the doctor. Don't wait for signs to appear—go early. You may prevent a long illness.

TO THE DOCTOR: To preserve strict medical confidence should this notice fall into incorrect hands, the suspected disease has been coded below for your identification only.

This individual has been exposed during the month of__________________ to the__________disease in the list of communicable diseases printed on the Monthly Numerical Morbidity Report. You may call any County Health Officer collect by telephone for interpretation of this code.

KINDLY AID the patient to complete the cooperation notice below.

PATIENT'S COOPERATION NOTICE

In order that a personal visit will not have to be made to the patient's home to determine if the patient has properly protected himself and others, this half of this card should be completed, detached and promptly mailed after the examination. This notice should be enclosed in the addressed, postage paid envelope enclosed with this message.

On the date of____________________________I reported to____________

Doctor________________________in (Town)______________________

My doctor found me: 1. Infected and placed me under treatment ☐

(Check one) 2. Not infected ☐

3. In need of further observation to determine if I am infected ☐

BE SURE TO SIGN (Kindly Print)__________________________________

MAIL IMMEDIATELY IN ORDER THAT A FOLLOW UP VISIT WILL NOT BE NEEDED

FIGURE 2.—Confidential notice of exposure and patient's cooperation notice.

was received to initiate a trial of this system in a small area of the State. A preliminary report at the end of 3 months of study revealed that 50 percent of the physicians in the area actually used the form. Forty-four of their patients voluntarily used the form and named 81 contacts, all extrafamilial (1.84 contacts per patient). The names and addresses on the self-interview forms received were sufficiently adequate for notification of exposure by mail in 61 cases (75 percent), while the other cases required personal visits by venereal disease investigators to follow up on inadequate information.

Due to a delay in obtaining printed forms, only 28 of these contacts received the revised confidential notice of exposure which had the attached cooperation notice. Seven returned the cooperation notice in 2 weeks, four of which reported themselves as infected and three as noninfected. The 21 who did not return a cooperation notice in 2 weeks were turned over for personal contact investigation. As a result of the use of self-interview forms in this brief trial, 30 new cases of venereal disease were discovered among the 59 contacts brought to examination either by mail notice or investigator effort. Although the trial conditions prevented our obtaining as completely reliable and statistically significant figures as we desired, the results were important in terms of the satisfaction expressed by the participating doctors.

In May 1946, the Council of the State Medical Association, on the basis of this preliminary evidence, formally approved this plan of private physician contact interviewing. Members of the Council expressed the opinion that this plan met the practical problems in the doctor's office and preserved the patient-doctor relationship. The Council further approved a recommendation that the system be extended to the entire State, a procedure now in progress. This action was taken in view of the possibility that, if projected over the entire State and if 50 percent of the private physicians again cooperated, this system might result in approximately 18,900 new patient office visits to private physicians for examination, of which about 9,900 might be found to be infected and become new patients.

Analysis of the form and the contact reporting system reveals several inherent limitations in its use. It depends on a fairly high level of reading ability, is an appeal to a sense of responsibility, and is most appropriate for use with the more educated component of a physician's practice, for which it wa specifically designed. Like all other systems of interviewing, it is subject to misuse by the naming of false contacts fo spite. It is also possible for a contac to avoid examination by returning forged cooperation notice, a weaknes that can be overcome when morbidit reporting by name is instituted. Als the system necessarily has been simplified to such an extent that it is not to adequate for the gathering of epidemiologic data and does not lend itself t the complete analysis and statistica control that the modern epidemiologi statistician desires. However, it i hoped that its case-finding merits wil compensate for its poor adaptation t statistical control patterns. It is obvious that this plan does not meet every specific venereal disease contact reporting problem of the private physician's field and that it should be used along with other supplementary instruments of case finding. Despite these handicaps, any system of contact reporting that is acceptable to the medical profession and that brings new cases of venereal disease to treatment, especially from a resource group where formerly almost no contacts were uncovered, certainly merits consideration and justifies further trial and observation.

Evaluative Study of Three Types of Epidemiologic Activity on 360 Syphilis Contacts

Herman N. Bundesen, M. D.,[1] Theodore J. Bauer, M. D.,[2] and Amelia H. Baker, M. A.[3]

In an effort to determine the most efficient method of bringing reported suspects of venereal disease to examination, a special study of the use of a telegram as compared to a field visit was made in the Epidemiology Section of the Chicago Venereal Disease Control Program.

During the period January through June 1945, the Chicago Intensive Treat-

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From the Venereal Disease Control Program of the Chicago Health Department, with the collaboration of Daniel H. Fillmore, Passed Assistant Sanitarian (R), U. S. Public Health Service; Director, Statistical Section, Venereal Disease Control Program.

[1] Senior Surgeon (R), U. S. Public Health Service (Inactive); President, Chicago Board of Health, Chicago, Ill.

[2] Senior Surgeon, U. S. Public Health Service; Venereal Disease Control Officer, Chicago, Ill.

[3] Director, Epidemiology Section, Chicago Venereal Disease Control Program, Chicago, Ill.

ent Center forwarded to the Epidemi-logy Section, for investigation, 633 re-orts of named, direct sexual contacts f primary and secondary syphilis pa-ients admitted to the Center. These amed, direct contact reports were rouped into the following three cate-ories:

1) Reports on which the information was insufficient for any type of investigation	8
(2) Reports on which there was sufficient information for a field visit but insufficient information for a telegram	265
(3) Reports on which there was sufficient information for either a telegram or a field visit, i. e., a full name and address	360

The special study was made on those reports falling into the third category. The reports as received were assigned alternately for a telegram or a field visit. As a third variable in the investigation of this group of 360 cases, the use of a letter was begun on May 1, 1945, but only 38 cases had been assigned a letter at the close of the study.

The form set up for the telegram, which cost 20 cents, is shown below:

> "IMPORTANT YOU REPORT TO MRS. A. BAKER, FOURTH FLOOR, 54 WEST HUBBARD STREET
>
> (Date) ________________
>
> HERMAN N. BUNDESEN, M. D., PRESIDENT, CHICAGO BOARD OF HEALTH"

When a telegram was recorded as a failure, either because it was undelivered or because the suspect failed to report, the case was then reassigned for a field visit.

The following tables 1 and 2 show the results of the study:

TABLE 1.—*Initial activity*

Type of activity	Cases assigned	Cases reporting	
		Number	Percent
Field visit [1]	163	53	32. 5
Telegram	159	70	44. 0
Letter	38	4	10. 5

[1] One visit only, patient was seen or not seen.

TABLE 2.—*Additional field activities on cases failing to respond to telegrams, letters, or the first field visit*

Original activity	Cases assigned	Cases reporting		Additional percent over initial activity	Total percent reported
		Number	Percent		
Field visit	110	56	50. 9	34. 4	66. 9
Telegram	89	41	46. 1	25. 8	69. 8
Letter	34	19	55. 9	50. 0	60. 5

As shown in table 1, field visits resulted in 32.5 percent of the cases in this group reporting for examination. Telegrams brought in 44.0 percent.

For the 110 cases failing to respond to the first field visit, further field effort was made and was successful in an additional 34.4 percent. Thus 109 (66.9 percent) of the field cases finally reported.

Of the telegram cases which failed to respond (89 cases) and were later reassigned for a field visit, an additional 25.8 percent reported for examination, bringing a total percentage of success in the original group of 159 cases assigned for telegrams to 69.8 percent.

Only 10.5 percent of the letter cases reported, but the small number of cases in the group may have affected the validity of the results.

From this study it would appear that in the investigation of reports giving the full name and address of the contact, the use of telegrams as demonstrated in this urban area is an inexpensive and effective means of bringing in the contacts for examination. Telegrams might also be used to reduce the number of cases which otherwise would require field investigation. However, because of the small numbers involved, this study should be considered in the nature of a very promising preliminary report. Further stud will be necessary before final conclusion can be made as to the relative effectiveness of the methods employed.

The following data which confirm th above conclusions were collected afte this study was completed: Telegram were sent routinely to direct sexual contacts of infectious syphilis patients whe complete information was availabl From January 1, 1946, through June 3 1946, there were 866 such contacts. Fou hundred (46.2 percent) suspects reporte in response to these telegrams.

Use of Telegrams in Venereal Disease Case Holding

Richard A. Koch, M. D.,[1] and Marian Thornton, R. N.[2]

Venereal disease control activities are divided into four categories. They are case finding, treatment, case holding, and education. The emphasis which should be assigned to each of these functions is a debatable question. Present trends seem to indicate that greater emphasis should be placed on case finding and treatment than has been done in the past.

For instance, Heller, Usilton, and Clark (*1*) write as follows: "Despite the great emphasis that has been given the importance of increased case finding and diagnostic activities by organizations receiving Federal grants-in-aid, only 9 percent has been spent for diagnosis and 11 percent for suspect investigations. Four percent of the money is still being spent for delinquent case investigation, an activity made relatively unimportant by recent developments in therapy and the creation of the rapid treatment center system."

Although we agree that expenditures assigned to case holding should be reduced to a minimum, we do not believe that case holding can be abandoned altogether if the efficiency of venereal disease control is to be maintained a a high level. The need for case holdin is important in spite of the more rapi and effective means of treating the venereal diseases because the failures wit these types of treatment, undetecte through lack of follow up, are of especia social and economic significance in th long range control of syphilis and gonorrhea. For this reason an effective cas holding method is of importance.

Heller's statement indicates a tren in public health thinking toward reducing effort and expenditure in cas holding. Field epidemiologic personne whose availability is generally limite and costly, should be used as extensivel as possible in case finding, not in cas holding. Therefore, if expenditures i case holding are to be markedly reduce without jeopardy to the entire program more economical technics must b developed.

We believe that such an economica technic exists in the use of telegrams A review of the relevant publications fo the past 8 years discloses no reference t the use of telegrams in venereal diseas case holding. However, the San Francisco City Venereal Disease Clinic ha used telegrams as part of its venerea disease case-holding technic since Jan. 3 1944. This procedure has continued i operation with the exception of 2 month rom Apr. 16, 1945, to June 27, 1945, durng which time no funds were available or this purpose. We believe that the use of telegrams offers an effective and economical procedure in case holding.

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[1] Chief, Division of Venereal Diseases, City and County of San Francisco, Calif., Department of Public Health.

[2] Supervising Venereal Disease Control Public Health Nurse, San Francisco, Calif., City Clinic.

DISCUSSION

Five possible methods of case holding are:

1. Direct personal visit.
2. Mail.
3. Telephone.
4. Compulsion.
5. Telegrams.

The direct personal visit in case holding s an effective procedure. It requires, however, a considerable number of manhours of field personnel and is relatively expensive when calculated in the cost of returning a patient to treatment. A review of our cost on returning a lapsed patient to treatment by this method is approximately $4.50. Ingraham (2), reporting on case holding at his clinics in New Jersey, states that the otal cost of contact tracing and case holding per new patient per year varied rom $11.36 to $16.58. Heller reports in an analysis of a cooperative survey with State and local public health departments hat the cost of case holding varied from $1.40 per case in the South Atlantic or Gulf States to $15.03 in the Pacific States.

The use of the mails in case holding s not an effective medium in returning patients promptly to treatment. It has a definite place in persuading noninfectious venereal disease patients to return for further treatment, but in our hands it has failed to effect rapid results. The receipt of a form communication from the health department apparently does not impress he patient. Mail deliveries are sometimes slow, especially when holidays and week ends intervene.

In our experience, the use of the telephone is of minor value. The type of patient under treatment at a health department clinic generally does not have he facilities of a telephone, or if such a telephone is available, it is generally registered under another name. Frequently when a telephone number is available on the patient's record, the recipient of the call does not relay the message to the patient.

Compulsion is a successful method of case holding. It is, however, expensive and is not productive of rapid return of the lapsed patient to treatment. In San Francisco an effective program of compulsion has been developed. An infectious venereal disease patient lapsing from treatment who fails to respond to the telegram and a home visit receives a citation from the district attorney's office instructing the patient to report to that office to show cause why a warrant should not be issued for his arrest. If the patient reports to this citation hearing, he is interviewed by a deputy district attorney and our supervising venereal disease control public health nurse. The infectiousness of the patient's disease is explained, and he is advised of his legal obligations to the community. If the patient fails to respond to the citation or fails to return to treatment following a citation hearing, a warrant is issued for his arrest. Upon arrest, the patient appears before the jurist of the San Francisco Clinical Court, and a judicial disposition is made on the basis of the facts presented. This usually results in a suspended sentence and probation if the patient is willing to return to treatment. If the patient is not willing to return to treatment, he is subjected to physical quarantine.

The use of telegrams in our experience has obviated the shortcomings of all of the above-described methods. It is rapid, inexpensive, and impressive and carries with it the weight of urgency. In the majority of instances, only one telegram is required.

Our procedure is to have the public health nurse telephone the telegraph company daily the names and addresses of delinquent patients. The routine telegram which we send reads as follows:

> "URGENT REPORT TO SAN FRANCISCO CITY CLINIC IMMEDIATELY."
>
> (Signed)

Table 1 reviews our experiences as the result of dispatching 1,275 telegrams over a 26-month period from Jan. 3, 1944, to Apr. 30, 1946. It will be noted that 826 (65 percent) of the total patients to whom telegrams were sent returned to treatment as the result of receiving them. Most patients returning did so within a period of 1 to 24 hours except when a holiday intervened. This indicates a much more rapid response to the telegram than to our other case-holding technics. Many of the patients were questioned regarding their reaction to the receipt of the telegram; with two or three exceptions, there were no complaints. The patients interviewed stated universally that they had been impressed with the urgency indicated by the telegram. In many of the earlier cases, direct home visits had failed to return the patient to the clinic whereas the patient reported promptly on receipt of the telegram. Subsequently, such home visits have been discontinued prior to the use of the telegrams.

Table 1.—*Results of use of telegrams for case holding, San Francisco City Clinic, Jan. 3, 1944, to Apr. 30, 1946* [1]

Result of telegram	Number patients	Percentage
Successful:		
Returned immediately	826	65.0
Located outside of San Francisco	15	1.2
Explanation of absence [2]	18	1.4
Total	859	67.6
Unsuccessful:		
Failed to respond	258	20.0
Wrong address: Not delivered	130	10.2
Patient moved: No forwarding address	25	2.0
Reported before delivery	3	.2
Total	416	32.4
Grand total	1,275	100.0

[1] Except for the period Apr. 16, 1945, to June 27, 1945.
[2] Ill, deceased, in institution, under arrest, in military service, or traveling.

Table 2 analyzes the cost of this type of case holding. The total funds expended for telegrams have been $331.50, or an average expenditure of $12.75 per month. The total cost is equivalent our full-time employment of a field ep demiologist for approximately one a one-half months. The average unit co of securing satisfactory information co cerning patients with a change of a dress was 39 cents and the average ur cost of returning patients to treatme was 40 cents.

Table 2.—*Cost analysis of use of tel grams in case holding, San Francis City Clinic, Jan. 3, 1944, to Apr. 3 1946.*[1]

Telegrams dispatched	$331.
Per telegram	.
Securing a satisfactory response	.
Returning a patient to treatment	.

[1] With the exception of the period from Ap 16, 1945, to June 27, 1945.

SUMMARY

1. Public health trend in venereal di ease control indicates the importance reducing expenditures for case holdin
2. Direct personal visit in case holdi is time consuming, expensive, and co paratively slow in returning the patie to treatment.
3. The use of the mails is slow and t telephone relatively ineffective in ca holding.
4. Compulsion is an effective but e pensive method of case holding and ca not be used until a considerable amou of time has elapsed since the patien last visit for treatment; other means returning the patient must generally used before this technic may be applie
5. Our use of telegrams has proved be economical and effective in ca holding.

REFERENCES

1. Heller, J. R., Jr.; Usilton, L. J.; Cla A. B.: A plan for revitalizing natio venereal disease control. J. Ven. D Inform., 27: 29–33, 1946.
2. Ingraham, N. R., Jr.: Syphilis epidemiolo applied: Fifteen years' experience wi contact-tracing and case-holding New Jersey. Ven. Dis. Inform., 1 61–73, 1938.

xperiences with Registered Letter Follow-up in the New York City Health Department

Theodore Rosenthal, M. D.,[1] and George Kerchner, B. S.[2]

The area of New York City is approxiately 320 square miles, containing 5,714 iles of laid-out streets. During the war ears approximately 25,000 contact reorts were received annually from civilian ources and the armed forces. At the ame time the manpower shortage imosed limitations on the number of cases hich could be followed up by home visit y field workers of the health depart-ent.

Contact investigation in a metropolitan rea like New York is fraught with many ifficulties and complexities. The city as named and numbered streets, aveues, places, and roads; many of these amed and numbered streets occur in ore than one of the five boroughs counties). For this reason, in many nstances the street address in itself may ot be sufficient. For example, Broadvay is located not only in Manhattan but lso in Brooklyn and Queens; the same umbered street may exist in several diferent boroughs as well as in the same orough. An example of this latter situaion is found in Brooklyn where there is Third Street, a South Third Street, a orth Third Street, a West Third Street, nd an East Third Street, in addition to Third Place, a Third Avenue, Brighton hird Street, and Bay Third Street.

Experience with contact information rom the armed forces has shown that pproximately 40 percent of those with dequate information for follow-up evenually cannot be located because of inadequate or incorrect addresses. In order to permit maximum utilization of manpower in the most effective manner, the expedient of using registered letter follow-up was adopted.

Where a full name and valid address is supplied to the health authority, and the case is one of significance from the public health standpoint (primary or secondary syphilis, acute gonorrhea, untreated or early latent syphilis, congenital syphilis under 1 year, and syphilis in pregnancy), follow-up is initiated by registered letter with return receipt requested.

This letter (fig. 1) written in polite and nonspecific language requests the recipient to consult his own physician or report to the health department within 2 days. The box on the left hand margin of this form letter contains space for file number and code letters. These are circled appropriately so that the clinic or physician may know the reason and the disease for which the patient is being followed. If the letter cannot be delivered by the post office, it is returned to the health department with the proper explanation. If it is received, the signed receipt comes back to the health department, indicating that such person actually resides at the address given and has received the letter.

In such cases, if there is no response by the contact, a follow-up worker is immediately assigned to make a home visit. The approach of the worker is materially facilitated by the knowledge that such person actually resides at the address and, furthermore, has signed a receipt for the letter from the health department.

If the person who has signed the postal receipt denies being the contact named, he or she is reminded courteously that ac-

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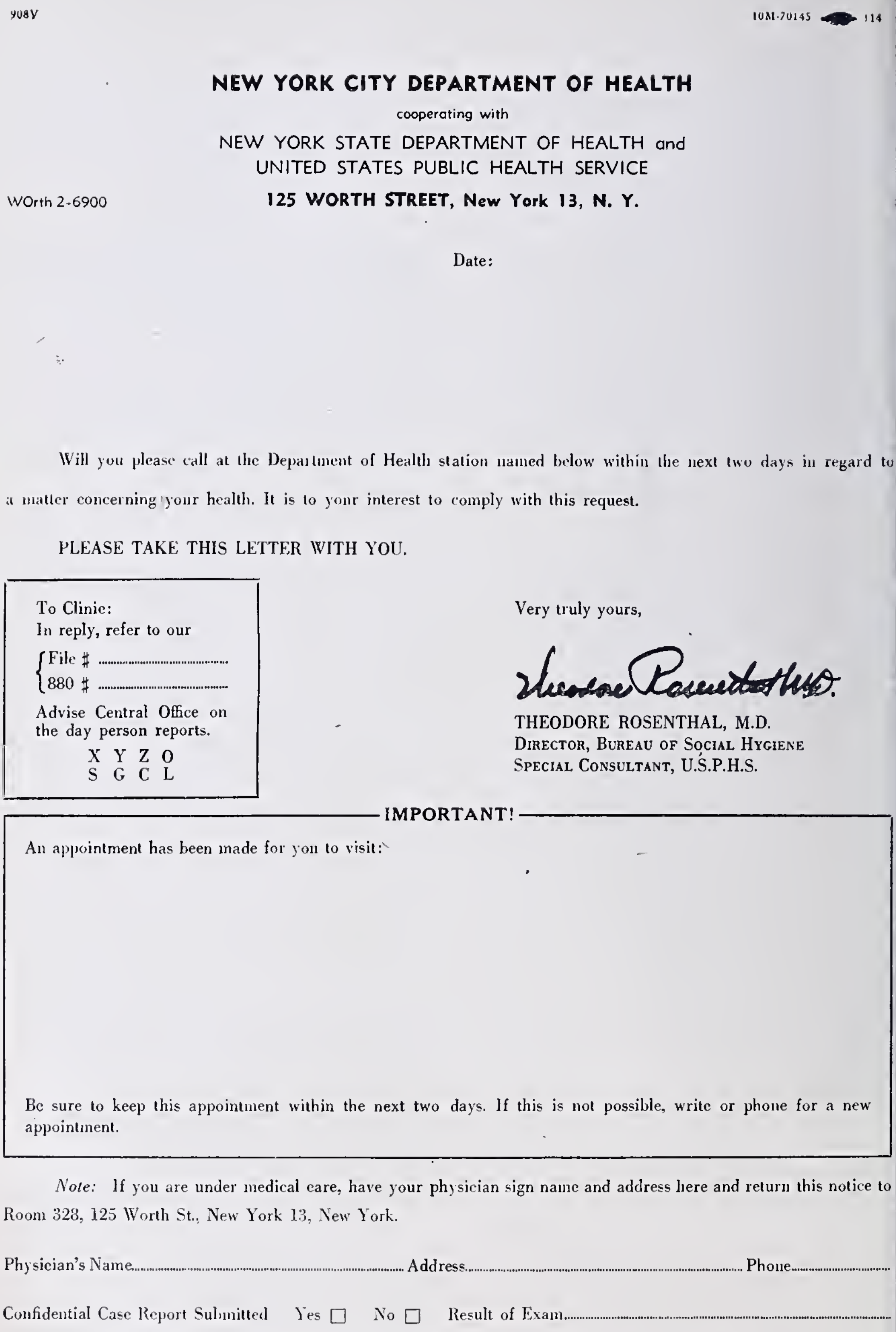
[1] Director, Bureau of Social Hygiene, New ork City Department of Health, New York; pecial Consultant, U. S. Public Health ervice.

[2] Senior Statistician, New York City Health epartment, New York.



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10M-70145 114

NEW YORK CITY DEPARTMENT OF HEALTH
cooperating with
NEW YORK STATE DEPARTMENT OF HEALTH and
UNITED STATES PUBLIC HEALTH SERVICE
WOrth 2-6900 **125 WORTH STREET, New York 13, N. Y.**

Date:

Will you please call at the Department of Health station named below within the next two days in regard to a matter concerning your health. It is to your interest to comply with this request.

PLEASE TAKE THIS LETTER WITH YOU.

To Clinic:
In reply, refer to our
File # ....
880 # ....
Advise Central Office on the day person reports.
X Y Z O
S G C L

Very truly yours,

Theodore Rosenthal M.D.

THEODORE ROSENTHAL, M.D.
DIRECTOR, BUREAU OF SOCIAL HYGIENE
SPECIAL CONSULTANT, U.S.P.H.S.

IMPORTANT!

An appointment has been made for you to visit:

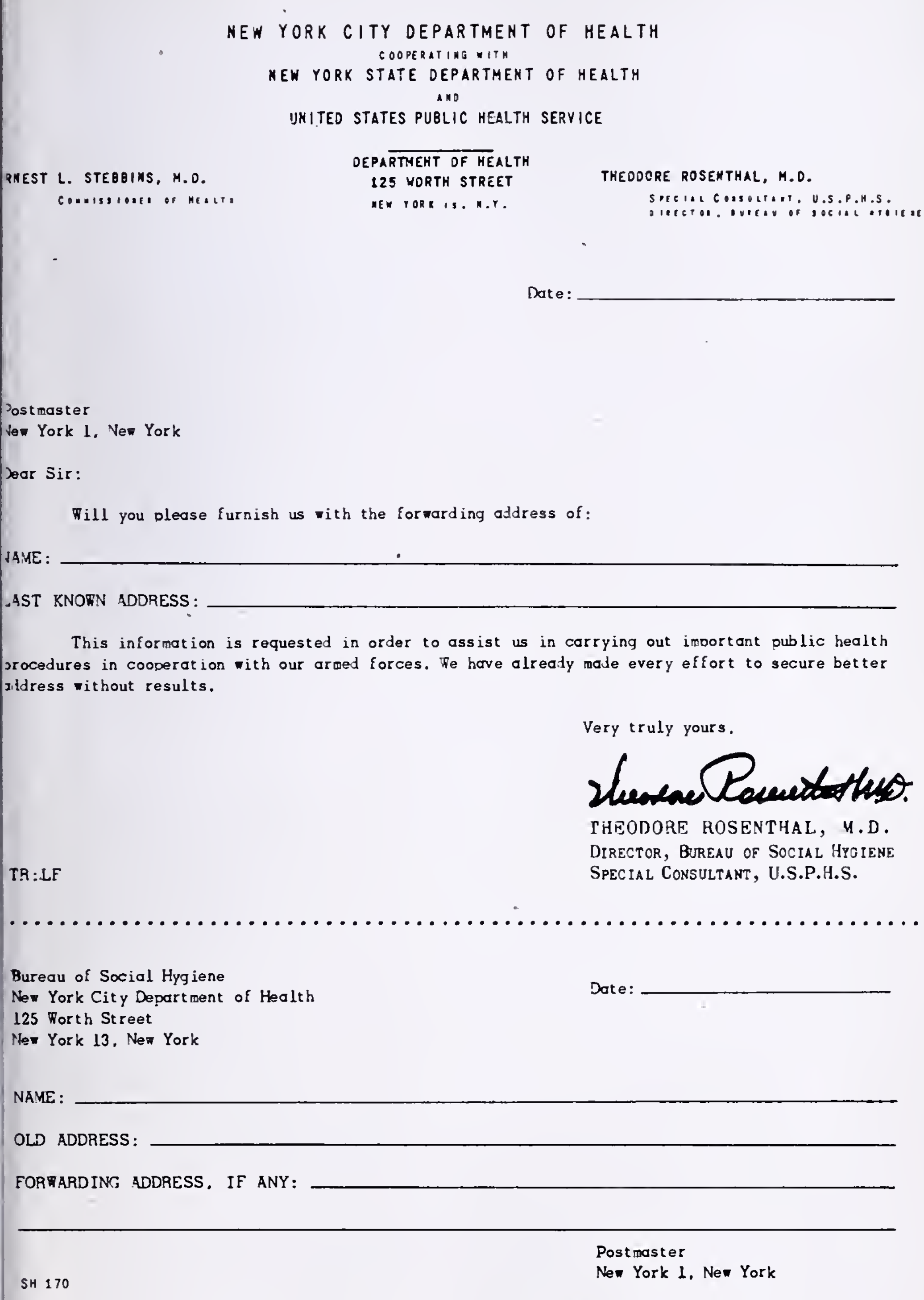
Be sure to keep this appointment within the next two days. If this is not possible, write or phone for a new appointment.

Note: If you are under medical care, have your physician sign name and address here and return this notice to Room 328, 125 Worth St., New York 13, New York.

Physician's Name.. Address.. Phone..........................

Confidential Case Report Submitted Yes ☐ No ☐ Result of Exam..

FIGURE 1.—Registered follow-up letter with return receipt requested.



NEW YORK CITY DEPARTMENT OF HEALTH
COOPERATING WITH
NEW YORK STATE DEPARTMENT OF HEALTH
AND
UNITED STATES PUBLIC HEALTH SERVICE

RNEST L. STEBBINS, M.D.
COMMISSIONER OF HEALTH

DEPARTMENT OF HEALTH
125 WORTH STREET
NEW YORK 13, N.Y.

THEODORE ROSENTHAL, M.D.
SPECIAL CONSULTANT, U.S.P.H.S.
DIRECTOR, BUREAU OF SOCIAL HYGIENE

Date: ____________________

ostmaster
ew York 1, New York

ear Sir:

Will you please furnish us with the forwarding address of:

AME: ____________________

AST KNOWN ADDRESS: ____________________

This information is requested in order to assist us in carrying out important public health rocedures in cooperation with our armed forces. We have already made every effort to secure better ddress without results.

Very truly yours,

Theodore Rosenthal M.D.
THEODORE ROSENTHAL, M.D.
DIRECTOR, BUREAU OF SOCIAL HYGIENE
SPECIAL CONSULTANT, U.S.P.H.S.

TR:LF

. . . .

Bureau of Social Hygiene
New York City Department of Health
125 Worth Street
New York 13, New York

Date: ____________________

NAME: ____________________

OLD ADDRESS: ____________________

FORWARDING ADDRESS, IF ANY: ____________________

Postmaster
New York 1, New York

SH 170

FIGURE 2.—Special form for requesting forwarding addresses from the post office.

cepting other people's mail constitutes a postal violation. In almost every instance this reminder produces the desired results.

When the post office cannot deliver the letter and such address actually exists, follow-up is continued by the health department in an effort to get additional information which may lead to locating the named contact. Such action may consist of further inquiry by means of a special form (fig. 2) which is a request for the post office to furnish the forwarding address. Additional visits also may be made to the premises by a field worker to question other tenants and the building superintendent for further leads.

It will be noted that 20.3 percent of such cases reported immediately through the registered letter; 76.1 percent of the cases were reassigned to field workers. The remaining cases were pending or closed for other reasons. Of the cases reassigned to field workers, approximately 45 percent were located.

A tabulation of the results of registered letter follow-up for the period July 1, 1945, to June 30, 1946, follows:

TABULATION

Results of notification by registered letter:

	Number	*Percen*
Brought to clinic or private physician	1, 612	20. 3
Assigned for personal follow-up	6, 034	76. 1
Unsuccessful or referred elsewhere	37	0. 5
Pending at close of period	247	3. 1
Total	7, 930	100. 0

Final results, registered letter with necessary personal follow-up:

	Number	*Percen*
Brought to clinic or private physician by letter only	1, 612	17. 2
Brought to clinic or private physician by letter and visit	3, 312	35. 4
Unsuccessful or referred elsewhere	4, 045	43. 2
Pending at close of period	391	4. 2
Total	*9, 360	100. 0

*Includes 1,430 suspects assigned to field workers—270 cases pending at beginning of period and 1,160 to whom no letters were sent. A special tabulation for 1 month only of cases followed up by visit after registered letter shows approximately the same percentage of cases brought to clinic or private physician as for these 1,160 cases.

Postgraduate Instruction in Venereal Disease

Albert Heyman, M. D.

The practicing physician and public ealth officer should be familiar with the w methods of treatment and recent reements in diagnosis of venereal disease. his can be achieved by postgraduate aining or refresher courses. The organation of such courses is the responsility of the Federal, State, and larger cal health departments, medical schools, d medical societies. These groups must alert to the ever-changing needs of e practitioner and must take leadership presenting him with opportunities for stgraduate study.

The Emory University School of Medine has been aware of these needs and cently sponsored a postgraduate course venereal disease in cooperation with e Georgia Department of Public Health. 2-day intensive course in the diagnosis nd treatment of venereal disease was ffered to the practicing physicians and ublic health officers in Georgia and eighboring States. The program of this ourse is given in appendix 2, page 256.

This program was planned as an innsive but practical course in venereal isease. Theoretic and didactic lectures ere purposely minimized and most of e emphasis was placed upon diagnosis nd treatment. Patients were presented demonstrate various problems in enereal disease, and movies, photoraphs, and lantern slides were extenively employed. The technics of various iagnostic procedures, such as cultures, arkfield examination, and biopsies were emonstrated in their simplest forms.

Methods not commonly employed, but epresenting recent refinements in diagosis, were also presented and their alue was thoroughly discussed. These rocedures included histologic examinaion of biopsy material, complement fixaion reactions for lymphogranuloma veereum, use of cardiolipin antigen, and cultural methods for Ducrey bacilli. An effort was also made to acquaint the physician with current experimental methods of treatment, even though the final results of these methods are not yet known. This was done in order to give the practitioner greater insight into future developments in venereal disease control and a better understanding of the problems now confronting the clinical investigator.

Most of the lectures on the various subspecialties of venereal disease were given by men especially trained in these fields. The radiologist, pathologist, and the pediatrician who participated in the course had been working closely with our venereal disease program and understood the various problems encountered in this field. These men were thus able to make significant contributions to the course, and their inclusion in the program was of considerable value. No effort was made to teach epidemiologic or syphilis control methods, since most of our group were public health officers who had been trained in this phase of the work. Almost all the emphasis in this course was on the clinical and laboratory aspects of venereal disease.

Various measures were taken to publicize the course. An announcement was made, and tentative programs were distributed at the annual meeting of the State Public Health Association.

The tentative contents of the course (see appendix 1, page 255) were submitted in advance in order to secure comments and suggestions and were organized under main headings as follows: diagnosis of syphilis; treatment of syphilis; diagnosis and management of gonorrhea in adults and children; recognition and treatment of chancroid, granuloma inguinale, and lymphogranuloma venereum; and epidemiologic and social problems. The announcement, which contained details of the course, carried a tear-sheet with space for comments and an application blank for the purpose

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From the Georgia Department of Public ealth and Emory University School of Medine.

of securing names of those interested in the course.

Similar announcements were also placed in the State and county medical journals. Letters were written to Emory Medical School alumni located in neighboring States. Special invitations were also sent to medical students, the resident medical staff, and various staff members of mental institutions. Arrangements were made for hotel reservations for all out-of-town physicians, and luncheons were served at the hospital.

Despite these measures, the attendance was not as great as we had hoped. Only a handful of public health officers and a few practicing physicians attended. There were several factors which may have accounted for this. The time of year may have been badly chosen—a fall or winter session might have been more popular. The publicity given to this course was not person-to-person and may not have been forceful enough. This was the first such refresher course in this field that either the School or State Health Department had organized, and many physicians were not familiar with either the staff or the quality of the program. Finally, the content of the course was apparently not sufficiently attractive. It must be remembered that venereal disease constitutes only a very small proportion of the average physician's practice and may not warrant 2 full days of his time. Moreover, the local health officer is no longer confronted with problems in venereal disease, since most of his patients are referred to the rapid treatment centers. It was felt, therefore, that in the future, venereal disease training should be given together with othe postgraduate courses. For example, venereal disease instruction may be give to public health officers along with instruction in other infectious diseases such as tuberculosis, poliomyelitis, an diphtheria. For the practicing physicia instruction in venereal disease should b included with refresher courses in internal medicine. Such postgraduat training would doubtless be more attractive to these groups than courses i venereal disease alone.

The value of our course in venereal disease is already becoming apparent. Th favorable comments of those attendin the sessions have reached other physicians and future courses should hav better attendance. Moreover, the cours has helped to further one of the ultimat aims of the Medical School and Stat Health Department, i. e., to establish consultation and diagnostic services whic are not offered by the rapid treatmen centers. We have already received from physicians who attended the course biopsies of tissue from genital lesion for histologic examination, and severa of the practicing physicians hav also sought advice regarding some o their venereal disease problems. W feel that the organization of a diagnosti and consultative center by the Medica School in cooperation with the Stat Health Department is the logical answe to postgraduate training in venereal an other infectious diseases. Such a cente can offer training on either an individua or group basis and will help the docto to meet many of the problems he now faces.

PPENDIX 1.—Announcement, Tentative Program, and Application Blank Distributed to Publicize the Postgraduate Course in Venereal Disease

The Georgia Department of Public Health announces a postgraduate course in enereal disease to be conducted in cooperation with the Emory University School of edicine. It will be held June 27–28 at the Grady Memorial Hospital, Atlanta, Ga.

This course is planned specifically for the public health physician and general actitioner. It is intended to be a practical and comprehensive study of the latest ethods of diagnosis and treatment of venereal diseases.

The course will be organized almost entirely around clinical material with a few pplementary didactic lectures. Special emphasis will be placed upon the problems diagnosis and penicillin therapy.

As this course is sponsored by the Public Health Department, there will be no ition fees for public health officers.

Please fill out slip below and mail before June 1 if interested in taking course.

Diagnosis of syphilis

A. Fundamentals and interpretation of serologic tests; detection of false positive tests, and handling of Wassermann-fast reactions.
B. Use and technics of darkfield examinations, and differentiation of spirochetes.
C. Differentiation of genital lesions and skin rashes.
D. Diagnosis of neurosyphilis; technic of spinal puncture and interpretation of spinal fluid findings.
E. Clinics on cardiovascular, ocular, and neurosyphilitic manifestations; problems in congenital and prenatal syphilis.

I. *Treatment of syphilis*

A. Fundamentals of penicillin and chemotherapy.
B. Present-day schedules for use in various stages of the disease.
C. Indications for and technics of fever therapy.

II. *Diagnosis and management of gonorrhea in adults and children*

A. Evaluation of laboratory tests; criteria for cure; treatment of vulvovaginitis and ophthalmia.

V. *Recognition and treatment of chancroid, granuloma inguinale, and lymphogranuloma venereum*

A. Interpretation and comparative value of biopsies, cultures, smears, and skin tests.

V. *Epidemiologic and social problems*

To: Dr. Albert Heyman
Grady Memorial Hospital
Atlanta 3, Georgia

I am interested in the postgraduate course in venereal disease. The proposed time, June 27–28, is satisfactory ☐
Is not satisfactory ☐
Comment:

Signed: ______________________________
Address: ____________________________

APPENDIX 2.—Program

Postgraduate Course in Venereal Disease

Grady Memorial Hospital, Atlanta, Georgia

THURSDAY, JUNE 27, 1946

Morning Session.—Dr. Albert Heyman presiding.

9:15	Introduction	Dr. Albert Heyman.
9:20	Address of welcome	Dr. E. A. Stead, Jr.
9:30	Movie: Diagnosis of Early Syphilis. (Courtesy of U. S. Public Health Service)	
9:50	Technic of Darkfield Examination, Diagnosis of Secondary Syphilis	Dr. Heyman.
10:30	Serologic Tests for Syphilis	Mr. E. L. Webb.
10:50	Interpretation of Serologic Tests	Dr. Heyman.
11:10	Treatment Schedules Used by the Atlanta Health Department in Early Syphilis	Dr. E. S. Armstrong.
11:30	Penicillin and Arsenical Therapy of Early Syphilis	Dr. Heyman.
11:50	Discussion of Management of Early Syphilis	
12:00	Adjournment for Lunch—Grady Hospital	

Afternoon Session.—Dr. E. S. Armstrong presiding.

1:30	Roentgenographic Examination of Bone Lesions in Congenital Syphilis	Dr. H. S. Weens.
1:50	Diagnosis of Early Congenital Syphilis	Dr. Heyman.
2:10	Treatment of Congenital Syphilis	Dr. Joseph Yampolsky.
2:30	Treatment of Syphilis in Pregnancy	Dr. E. S. Armstrong.
2:50	Intermission	
3:00	Early and Late Cutaneous Manifestations of Syphilis	Dr. Herbert Alden.
3:40	Cardiovascular Syphilis	Dr. R. B. Logue.
4:00	Movie: A Lecture on Spirochetes. (Courtesy of American Bacteriologic Association)	

FRIDAY, JUNE 28, 1946

Morning Session.—Dr. Trawick Stubbs presiding.

9:15	Fundamentals of Penicillin Therapy	Dr. P. B. Beeson.
9:35	Use of Penicillin in Beeswax	Dr. Max Michael.
10:15	Management of Late Latent and Neurosyphilis	Dr. Heyman.
11:15	Discussion	
11:40	Roentgenographic Examination of Osseous Lesions in Acquired Syphilis	Dr. Weens.
12:00	Adjournment for Lunch—Grady Hospital	

Afternoon Session.—Dr. Trawick Stubbs presiding.

1:30	Diagnosis and Treatment of Gonorrhea	Dr. E. S. Armstrong.
1:50	Diagnosis and Treatment of Chancroid	Dr. Heyman.
2:10	Use of Biopsy in Diagnosis of Venereal Disease	Dr. W. H. Sheldon.
2:30	Lymphogranuloma Venereum and Granuloma Inguinale	Dr. Heyman.
3:00	Technic for Isolation of Virus of Lymphogranuloma and Donovan Bodies	Dr. Ross Whatley.
3:20	Discussion of Management of Minor Venereal Diseases	
3:40	False Positive Serologic Tests for Syphilis	Dr. Heyman.
4:00	Adjournment	

CURRENT LITERATURE

NOTE: Abstracts of any article listed below are available on request. In addition, abstracts of all articles concerned with venereal diseases or related subjects which have been published in the better known journals both here and abroad during the past 20 years are in the files. These are open to workers in the field. An asterisk (*) before a title indicates that the article is abstracted below.

ACAD. MED. BULL., PARIS

*Treatment of experimental and human syphilis with a fat soluble combination of bismuth and methyl ester of penicillin. C. Levaditi and A. Vaisman. 130: 284–288, 1946.

*Presence of specific virus in the sternal bone marrow of syphilitics. A. Vaisman. (Presented by C. Levaditi.) 130: 290–292, 1946.

Treatment of experimental and human syphilis with a fat soluble combination of bismuth and methyl ester of penicillin.—In a previous paper, the authors reported that simultaneous treatment with penicillin and bismuth in subtherapeutic doses resulted in complete sterilizing cure of syphilitic rabbits, thus proving the synergistic effect of the two substances each of which administered alone did not have the same curative effect.

Since a new fat soluble preparation of penicillin in the form of methyl ester was synthesized by Hobby, Meyer, Dawson, and Chaffee, the authors were able to give penicillin and bismuth in 1 intramuscular injection.

In this paper, the authors give a preliminary report of their experiences with the new preparation.

Rabbits were given 10,000 to 50,000 Oxford units of penicillin and 1 to 5 mg. of bismuth per kilogram with the result that spirochetes rapidly disappeared and that the syphilitic lesions healed after 7 to 14 days.

Four patients with primary and five with secondary syphilis were treated with 1 daily injection of 2 cc. of the new combination, containing 60,000 units of penicillin and 10 mg. bismuth, for 15 days (total dose 900,000 units of penicillin and 30 cg. bismuth). After an interval of 7 days, the dose was repeated. A total dose of 1,800,000 units of penicillin and 60 cg. bismuth was administered. The treatment was well tolerated. Spirochetes disappeared after 1 to 3 days (in 1 case only after 7 days). Primary and secondary lesions healed after 6 to 12 days. Positive seroreactions showed a tendency to become negative.

Presence of specific virus in the sternal bone marrow of syphilitics.—Confirming the old experimental findings of Neisser (1906), the author succeeded in transmitting infection from syphilitic rabbits to new rabbits by inoculation of tibial bone marrow. The material was obtained from rabbits which had been subscrotally infected 55, 59, 72, and 82 days previously, the scrotal lesions of which had healed since. Microscopic examination of the bone marrow did not reveal any trace of spirochetes. Inoculations resulted in formation of chancres in the new rabbits after 50, 60, and 65 days, respectively.

The author applied the same method to human pathology. In four patients with early (primary and secondary) syphilis, sternal punctures were done and the obtained bone marrow, in which no spirochetes were found on microscopic examination, was inoculated into rabbits. Some of the animals developed syphilitic lesions after 60, 64, and 76 days, respectively. Inoculation of sternal bone marrow from two patients with late syphilis had negative results.

AM. J. CLIN. PATH., BALTIMORE

Cardiolipin antigen in the microscopic slide precipitation test for syphilis. B. S. Kline. 16 : 68–80, Feb. 1946.

AM. J. SYPH., GONOR., & VEN. DIS., ST. LOUIS

*Penicillin sensitivity and morphology of the Reiter strain of Treponema pallidum after cultivation in media containing penicillin. Tsun Tung and Chester N. Frazier. 30 : 205–210, May 1946.

*Penicillin treatment of benign late gummatous syphilis. A report of 21 cases. David D. Dexter and Harold A. Tucker. 30 : 211–226, May 1946.

*Acute syphilitic meningitis treated with penicillin. A progress report. Russell A. Nelson and Joseph Earle Moore. 30 : 227–230, May 1946.

*Syphilitic arachnoiditis treated with penicillin. J. Lamar Callaway, Ray O. Noojin, Beatrice H. Kuhn, Kathleen A. Riley and John A. Segerson. 30 : 231–234, May 1946.

*Intrathecal administration of penicillin in general paresis. George D. Weickhardt. 30 : 235–241, May 1946.

The toxicologic and therapeutic action of penicillin on mice infected with the agent of lymphogranuloma venereum. Geoffrey Rake and Helen Jones. 30 : 242–246, May 1946.

*Penicillin treatment of previously untreated acute gonorrhea. J. R. Scholtz and Robert Dyar. 30 : 247–251, May 1946.

*False positive serologic tests for syphilis following blood donation. Robert D. Barnard, Charles R. Rein and Charles A. Doan. 30 : 255–263, May 1946.

*Lumbar puncture headache. A statistical analysis of five hundred punctures. Laurence J. Underwood. 30 : 264–271, May 1946.

*A study of liver function following massive arsenotherapy for syphilis. Lawrence J. Thomas and Sidney Olansky. 30 : 272–278, May 1946.

Penicillin sensitivity and morphology of the Reiter strain of Treponema pallidum after cultivation in media containing penicillin.—The present paper deals with in vitro studies on the adaptability of the Reiter strain of spirochete, Treponema pallidum, to increasing amounts of penicillin and with the morphologic changes in this organism after consecutive transfers in media containing penicillin.

The organism was grown in a fluid thioglycollate medium to which was added 10 percent of rabbit seru Sodium penicillin said to contain from to 20 percent of penicillin X was di solved in the thioglycollate medium the concentration of 100 units per mill liter, and the mixture was inoculate with 0.1 ml. of a 4-day-old culture of th spirochete. After 72 hours of incubatio at 37° C., in the presence of a subletha amount of penicillin, the organisms wer transferred to fresh media containin various concentrations of penicilli Daily darkfield examinations of the cu tures were made to detect any morpho logic changes in the organisms, and th length of the spirochetes was measure using the ocular micrometer under dark field illumination. Stained smear prep arations were made by the silver mirro method of Steiner.

Four replicas of experiments carrie out under identical conditions gav similar results. It was found that th Reiter strain of T. pallidum did not de velop an increased tolerance to penicilli after being subjected to 15 consecutiv passages through mediums containin penicillin, and that, after 72 hours of in cubation, the sublethal level of penicilli for the spirochete was from 0.05 to 0. Oxford units per milliliter of medium the spirochetostatic level being approximately 0.125 unit. A tremendous in crease in the length of individual organisms was observed in subcultures exposed to the same amount of penicillin: these organisms were of sluggish motility, and none of the long forms were flagellated. These long forms were short-lived, appearing in the culture after 24 hours of incubation and gradually disappearing after 72 hours. Both pure and partially purified penicillin were found to possess the same potency of action and produced the same effect on cellular growth.

Penicillin treatment of benign late gummatous syphilis. A report of twenty-one cases.—This is a report on 21 patients with benign late gummatous syphilis who received penicillin therapy at the Johns Hopkins Hospital during the period October 1943 to March 1945. Cuineous, mucocutaneous, or mucous membrane gummas were present in 15 of the atients, 4 had osseous lesions, and 2 preented visceral involvement (hepatic ummas).

Treatment consisted of sodium penillin in physiologic saline administered y intramuscular injection every 3 hours, ay and night, in total dosages ranging rom 60,000 to 4,000,000 Oxford units. utaneous and mucosal gummas underent rapid and progressive improvement, here being only one incipient relapse nd one treatment failure, both of which ere completely healed by larger doses f penicillin. Osseous lesions responded ell in regard to acute symptoms and to hronic destructive or proliferative activty, and visceral gummas showed relaively rapid symptomatic improvement. atisfactory response is noted in a case f gummatous keratitis, a distinctly rare lisease due presumably to the actual odgment of the treponema in the eye.

Criteria of complete healing included estored continuity of the skin surface y complete epithelialization and disapearance of signs of inflammation in ulerative cutaneous gummas; the disapearance of swelling, induration, and rythema in nodular gummas; and resoration of the integrity of the mucous nembrane or complete quiescence of the esidual perforation in perforating gumnas of the palate. General clinical imrovement, normal laboratory tests, and liminution in visceral size were used as riteria of cure in visceral gummas.

While a total dosage of 1,700,000 O. u. r more was seen to give consistently satisfactory results, particularly in cutaneous gummas, the use of a minimum total dosage of 2,000,000 O. u. is recommended for the inpatient treatment of benign late gummatous syphilis.

It is noted that the presence of a positive spinal fluid Wassermann reaction in 61.9 percent of the patients in this series suggests a frequency of concomitant neurosyphilis and benign late gummatous syphilis (mucocutaneous or osseous) greater than that observed by other investigators.

Acute syphilitic meningitis treated with penicillin. A progress report.—The authors report on the further progress of 10 patients with acute syphilitic meningitis treated with penicillin in the Johns Hopkins Hospital who were previously reported upon in March 1945 as to their status in September 1944. All the patients except one have now been followed for at least a year; this individual originally treated with the minimum dose of penicillin (600,000 units in 7½ days) developed an infectious mucocutaneous relapse 287 days after treatment. Retreatment was administered with arsenic rather than penicillin, but this patient is now lost from observation. In the remaining 9 patients there has been no clinical evidence of relapse; in all except one, who has a slight residual deafness and facial weakness, the clinical status is entirely normal. In all the patients the spinal fluids, originally strongly positive, are now negative as to cell count, protein content, Wassermann, and colloidal mastic curves.

Only 2 patients of the entire series have received any treatment other than the original course of penicillin; one of these was retreated with arsenic because of infectious mucocutaneous relapse, and the other was retreated with penicillin 260 days after the first course of treatment because of serologic relapse in the spinal fluid.

It is recommended that patients with acute syphilitic meningitis receive a total of at least 2 to 3 million Oxford units of penicillin, administered intramuscularly in divided doses every 3 hours day and night over a minimum period of 8 to 16 days.

Syphilitic arachnoiditis treated with penicillin.—The therapeutic response of syphilitic arachnoiditis in the past has been unsatisfactory, the patient generally showing rapid progression of symptoms with death due to an intercurrent infection. The authors report on two cases in which penicillin brought definite improvement, however.

A Negro male, aged 27, was first seen in the Duke Hospital dispensary on December 15, 1944, complaining of weakness of the arms. The blood serologic Kahn and Mazzini reactions were positive, the Kline reaction was doubtful, and the Wassermann reaction was negative. The patient was unaware of previous syphilitic infection. Approximately 2 weeks later he was admitted to the hospital with paralysis of the legs and weakness of the upper extremities; a diagnosis was subsequently made of syphilitic arachnoiditis and penicillin therapy was started on January 23, 1945. The patient received 15 injections of 10,000 units each, followed by 77 injections of 50,000 units each every 3 hours, intramuscularly, for a total of 4,000,000 units, and on February 5, 1945, he was discharged, symptomatically improved. The latest examination, 8 months after admission, revealed that the patient was working, gaining weight, and showed no weakness. An apparent relapse occurred in the spinal fluid in November 1945, however, and 4,000,000 units of penicillin with concomitant typhoid antigen fever therapy were administered. The patient has remained clinically well, but repeated spinal fluid examinations are made frequently.

The second case is that of a 26-year-old Negro male admitted to the Duke Hospital on September 5, 1944, with numbness and paralysis of the extremities of 4 days' duration. The patient had had a penile lesion and a generalized eruption 1 year previously, and at the present admission a diagnosis of syphilitic arachnoiditis was made. Eighty intramuscular injections of penicillin consisting of 50,000 units every 3 hours to a total of 4,000,000 units were administered, and the patient was discharged on September 27, 1944. An examination 9 months later found him to be in an asymptomatic condition, walking unassisted, and gaining weight.

No other cases of syphilitic arachnoiditis treated with penicillin are known to the authors, and it is thought that the results in these two cases justify further investigation of the use of large doses of penicillin in the treatment of this condition.

Intrathecal administration of penicillin in general paresis.—This is a report on 5 patients with general paresis treated by the intrathecal administration of pe cillin at St. Elizabeths Hospital, Was ington, D. C.

Penicillin injected intravenously or i tramuscularly does not penetrate into t cerebrospinal fluid in appreciab amounts. Following lumbar subarac noid injection, however, diffusion throug out the subarachnoid spaces ar ventricles takes place and the inject substance is then absorbed into the blo stream whence a second contact with t neural tissues may take place, excreti of the penicillin being decidedly delaye Undesirable reactions following the su arachnoid method of administration i clude headache, vomiting, and severe co vulsive seizures, two deaths having bee recorded following a series of intraci ternal injections. The reports in gener seem to discourage the use of massi doses of penicillin by the intrathec route.

The 5 patients admitted to St. Eliz beths Hospital were selected for th study on the basis of uncomplicate paretic neurosyphilis previously u treated by penicillin or fever therapy. N history of convulsive seizures was presen Each patient received sodium penicilli by the intrathecal route daily for 10 day small initial doses being increased gradu ally to a maximum of 100,000 units, patient receiving as much as 125,000 unit

Detailed case histories for each patie show that none developed serious rea tions attributable to the intrathecal inje tion of penicillin, although in 2 cases total of 850,000 units was given within 10-day period. In 3 cases, doses as larg as 100,000 units were given on severa consecutive days without ill effect. N sign of meningeal irritation or a tendenc toward convulsions was noted during th year of observation, and in 1 patient wh died of suffocation due to food particle no damage to the brain or spinal cor could be detected at necropsy. Clinica and serologic results in the 4 survivin patients compare favorably with thos following accepted methods of treatmen It is noted, however, that this method i still in the experimental stage and is no to be recommended for routine use.

Penicillin treatment of previously un- eated acute gonorrhea.—This paper scribes the treatment conducted at 11 A. F. hospitals with selected medical nd laboratory personnel and standard- ed procedures in 387 white and Negro ldiers with previously untreated acute norrhea.

Smears and cultures were done rou- nely on all patients but only those in hom the diagnostic evidence included positive culture are included in this udy. Blood sulfonamide determina- ons and a lignin test on the urine were ed to rule out any possible previously lf-administered sulfonamide therapy.

Details are given of the 6 treatment hedules used, and the number treated each group, along with the results, is own in table form. Ninety-eight per- nt of 101 patients treated with 20,000 its of penicillin intramuscularly, every hours for 5 doses, were considered cured ter 21 days of observation. The pro- rtions were less when other treatment hedules were used, the lowest rate (71 rcent) occurring in individuals who ceived a single injection of 100,000 its. In every group, 90 percent or ore of the individuals with negative ltures on the first day had 4 successive gative cultures in the first 96 hours sttreatment. Ninety-eight percent of e entire group with bacteriologically gative cultures 4 days posttreatment d a minimum of 4 successive negative ltures between the fourth and twenty- st posttreatment days.

By the end of 7 days posttreatment, tween 80 and 90 percent of the indi- duals of every group were free from ethral discharge; at the end of 21 days observation, from 1 to 7 percent of e patients still had some urethral dis- arge, usually slight. Urinary abnor- alities, such as haziness, shreds, or oudiness disappeared less rapidly, be- g still present in two-thirds of the suc- ssfully treated individuals on the venth day after treatment and in early one-third of the patients on the venty-first day posttreatment.

False positive serologic tests for syphilis following blood donation.—The purpose of this paper is to define the role of blood donation as a possible factor in producing positive serologic reaction in presumably normal nonsyphilitic donors. Donations at the Columbus American Red Cross Blood Donor Center are the subject of study.

For the first 6 months of operation of the center, the bulk of the subjects were initial donors; however, the occurrence of positive serologic reactions in the relatively small percentage of redonors had sufficient frequency to become disturbing to the program. It was considered doubtful if the procedure of sending initially seronegative blood donors to private physicians was justified since many were probably not syphilitic. An example of such a case is that of a 32-year-old man who had given two donations with negative serologic findings but whose third donation, 8 weeks after the second, was found to be serologically positive. Although he presented no clinical evidence of syphilis, his private physician gave him two injections of neoarsphenamine, with subsequent negative serologic reaction. The patient developed an arsenical hepatitis, however, and 1 year later was still in poor health. Thus such donors are likely to be diagnosed as syphilitic and treated needlessly.

In addition to the data secured from donors at the time of regular collection of blood at the Center, postdonation spot serologic samples were secured on a group of 300 reformatory inmates who had volunteered as donors. Samples were taken at daily intervals from the tenth to the seventeenth day, at the end of 1 month, and at the end of 2 months. Almost 10 percent of these donors developed some degree of seropositivity during the first month following the donation. Most of the seropositive reactions reverted to negative by the end of an 8-week period (the normal interval between successive bleedings). Although the experimental series was small, it was sufficient to indicate that bleeding could be a factor in producing positive serologic reactions for syphilis.

The analyses of serologic results obtained in all classes of donors for the first year of operation at the Columbus center are given in table form. The incidence of serologic positivity on all tests is 0.33 percent, as compared to a figure of 0.32 percent for the country at large. Initial donors showed a seropositivity rate of 0.62 percent. When a subject exhibited a seropositive test for syphilis, he was no longer acceptable as a donor. Also given in table form is the incidence of initial seropositivity on 2- and 3-time donors; it is seen that the incidence of seropositivity drops sharply after the first donation and that following the third donation seropositive tests continue to appear but with diminishing frequency, the incidence reaching the disappearing point after the fifth donation.

It was concluded that blood donation is a medical episode that may be followed by false serologic tests for syphilis. The incidence of false positive serologic tests for syphilis following blood donation at the Columbus center was found to be over 0.4 percent, a figure which constitutes a serious medical problem considering the large number of blood donors, especially since the donors are likely to be falsely diagnosed and treated needlessly.

Lumbar puncture headache. A statistical analysis of five hundred punctures.—The author reviews the literature on postpuncture disturbances and methods of prophylaxis and treatment in connection with examination of the cerebrospinal fluid in the diagnosis of syphilis. No consistently reliable method of prevention has been found, and investigators disagree as to the value of bed rest or inactivity following puncture.

This report presents observations made from 500 lumbar punctures in ambulatory patients. The puncture was made in the third or fourth lumbar interspace and the average amount of fluid collected was 6 to 8 cc. The majority of patients rested in the office less than 15 minutes, many arising immediately. From 500 lumbar punctures, 353 (70 percent) were not followed by headaches; 93 (19 percent) were followed by moderate or severe headaches. Sedation did not decrease the number of reactions since headaches occurred in 24 percent of those patients given a sedative (phenobarbital or sodium pentobarbital) and in 15 percent of those who were not.

Patients with negative spinal fluid tests were more susceptible to reactions than those in the positive fluid group and the individual presenting emotional reactions to the lumbar puncture more frequently had an incapacitating headache than the calm, quiet patient.

With the exclusion of pregnant women and persons with manifest early syphilis the importance of a routine spinal fluid examination is stressed as an important early diagnostic and prognostic procedure. Twenty-two percent of all patients having an initial spinal fluid study in the present survey were found to have positive findings indicating neurosyphilis.

A study of liver function following massive arsenotherapy for syphilis.—This article deals with the measuremen of possible toxic effects of massive arsenotherapy on the liver by means of live function tests in a group of 49 persons admitted to Gallinger Hospital for the rapid treatment of syphilis. On admission, each patient was given a hemogram urinalysis, and serologic test for syphilis in addition to darkfield examinations in the presence of genital lesions. The next day, each patient was subjected to the following liver function tests: plasma proteins, cephalin flocculation test, hippuric acid test, and bromsulfalein test.

Following these tests, the patients were started on intensive arsenotherapy, involving the administration daily, for days, of 240 mg. of mapharsen in 2,000 cc. of 5 percent dextrose solution in distilled water by slow intravenous drip requiring 6 to 8 hours. The total dose of arsenoxide administered in each case was 1,200 mg. On the day following completion of this course of therapy, each patient was again tested with the above liver function tests.

The results are presented in table form arranged according to stage of disease was found that 69 percent of the pa- ents had positive cephalin flocculation sts prior to therapy, and that a definite provement was noted in 91 percent of ese after the course of treatment. Be- re therapy, 63 percent of the patients d normal results with the hippuric acid st and 37 percent had abnormal results. f the latter, 89 percent showed improved ppuric acid excretion following arseno- erapy. Clinically, none of the patients anifested any evidence of toxicity from eatment that would indicate liver dam- ge.

It is concluded that large doses of ar- noxide given within a 5-day period do t usually produce detectable liver dam- ge. The results of this study indicate at there is an active hepatitis during e primary and secondary stages of philis, and the facts that this hepatitis nproved during arsenotherapy and that rsenic is spirocheticidal, suggest that e hepatitis was syphilitic in origin and at arsenotherapy, instead of being epatotoxic, is actually beneficial to the ver.

NN. ET. BULL. DE DERMAT., PARIS

*Frequency of jaundice in the course of arsenotherapy. M. J. Marshall. 5 : 170–172, July–Aug. 1945.

*Systematic Frei tests in prostitutes. Lucien Périn, R. Duperrat and E. Lafontaine. 6 : 24–26, Jan. 1946.

Frequency of jaundice in the course f arsenotherapy.—During the war, an pidemic of jaundice was observed among yphilitics and nonsyphilitics in Great ritain.

Prior to the war and in 1939 and 1940, hen syphilis was treated with neoars- henamine, less than 5 percent of the ases developed icterus. In 1942 and 943, with the same preparation, icterus as seen in 50 percent of the patients, ppearing on an average of 100 days fter the first injection of arsphenamine. Vith arsenoxides, used since 1944, cases f jaundice occurred, the percentage arying in different parts of the country.

At the same time, numerous cases of pidemic jaundice were observed in non- yphilitics, in a smaller proportion, how- ver, than postarsenical jaundice in yphilitics. Whereas jaundice in syphilitics appeared about 80 to 100 days after the first injection of arsenoxide, the incubation period in epidemic jaundice was from 27 to 30 days; no other distinction could be made between the two types, neither clinically, nor biochemically, nor histologically (biopsy). There was no cross-immunity in the two types of jaundice as the epidemic form occurred in patients cured from the postarsenical one.

The author assumes that both types of jaundice are due to filterable viruses or to different species of the same virus. In the syphilitics, it may have been transmitted by syringes soiled with blood and not well sterilized. Other factors could be responsible but are considered less important.

Systematic Frei tests in prostitutes.—In order to find out whether the decrease in the number of cases of lymphogranuloma venereum (Nicolas-Favre's disease) in prostitutes corresponds with the percentage of positive Frei tests, the authors performed Frei tests on all of the 700 prostitutes hospitalized in Saint-Lazare Hospital during the first 7 months of 1941. Mouse antigen (0.2 cc.) was used; in doubtful cases, the intradermal test was repeated. Of 13 patients who showed positive Frei tests, 6 (0.8 percent) had definite clinical signs of lymphogranuloma venereum; of the 7 (1 percent) others, 2 had "possible" lymphogranuloma venereum and 5 had no clinical signs nor was there any history of the disease. In 6 (0.8 percent) patients who had no signs and a negative history, the Frei tests were found doubtful (either control positive or repeated test negative). Six hundred eighty-one (97.3 percent) cases had no signs and gave negative tests.

Although the authors used mouse antigen (human and simian antigens were not available), all cases of lymphogranuloma venereum showed strongly positive reactions. The relative small percentage of positive tests is attributed to the fact that the prostitutes examined were particularly young women who had engaged in prostitution only for a relatively short time.

Contrary to the opinions of other investigators, the authors consider the Frei test specific.

Arch. Dermat. & Syph., Chicago

- Juxta-articular node of leprous origin. H. Portugal and Glynne L. Rocha. 53 : 471–476, May 1946.
- Pityriasis rosea resembling secondary syphilis. Isadore Rosen. (Manhattan Dermatologic Society, Nov. 14, 1944.) Society Transactions. 53 : 529–530, May 1946.
- A case for diagnosis (syphilitic verruciform melanoleukoderma?) A. Fletcher Hall and Clement E. Counter. (Los Angeles Dermatological Society, Nov. 14, 1944.) Society Transactions. 53 : 533–535, May 1946.
- Syphilis with amyotrophic lateral sclerosis. Hal E. Freeman. (Los Angeles Dermatological Society, Nov. 14, 1944.) Society Transactions. 53 : 535–536, May 1946.

Arch. Int. Med., Chicago

- Syphilis : A review of the recent literature. Progress in internal medicine. Charles F. Mohr, Virgil Scott, Richard D. Hahn and Joseph Earle Moore. 77 : 332–364, Mar. 1946 ; 77 : 428–472, Apr. 1946.

Brit. M. J., London

- Malaria therapy for tabo-paresis. Letters, Notes, and Answers. No. 4447 : 512–513, Mar. 30, 1946.
- Excluding gonorrhoea. Letters, Notes, and Answers. No. 4448 : 557, Apr. 6, 1946.

Bull. Acad. de Méd., Paris

- *Sterilizing action of penicillin in experimental asymptomatic syphilis of mice. C. Levaditi and A. Vaisman. 129 : 251–253, 1945.
- *Curative effect of penicillin on Nicolas-Favre's disease (lymphogranuloma venereum) in mice. C. Levaditi and A. Vaisman. 129 : 253–255, 1945.
- Application of serodiagnosis in syphilis : Necessary choice of methods. E. Debains. (Presented by Levaditi.) 129 : 258–260, 1945.
- *Prevention of experimental syphilis in rabbits with penicillin. C. Levaditi and A. Vaisman. 129 : 556–558, 1945.
- *Studies regarding immunity in experimental syphilis. P. Gastinel. 129 : 587–588, 1945.

Sterilizing action of penicillin in experimental asymptomatic syphilis of mice.—The authors previously reported that penicillin in doses of 5,000 to 15,000 Oxford units (250,000 to 750,000 O. u. per kilogram) subcutaneously administered to mice with asymptomatic syphilis of long duration resulted in rapid disappearance of spirochetes within 24 hours after the first injection.

In this paper they claim that they can prove that the same treatment resulted in a complete sterilizing cure of the mice. Three treatment schedules, consisting of 5,000 O. u. of penicillin daily for 1, 2, or 3 days (totaling 5,000, 10,000, and 15,000 units, respectively) were each administered to 2 mice, following which the mice were killed and emulsions from the brains and other organs were prepared and inoculated into young rabbits. The emulsions taken from mice treated with only 5,000 O. u. caused syphilis in the rabbits, the lesions appearing on the one hundred twenty-fourth day after injection. Emulsions from organs of mice with 2 or 3 days of penicillin treatment (10,000 and 15,000 O. u., respectively) did not cause syphilitic infection in the rabbits.

Moreover, the authors show the preventive effect of penicillin on experimental syphilis. Mice were infected with syphilis and immediately were treated with 5,000 O. u. of penicillin for 3 days. They were killed 4 months later and rabbits were inoculated with emulsions from their organs. No syphilitic infection could be demonstrated in the rabbits. In the injected but not treated mice numerous spirochetes were found.

Curative effect of penicillin on Nicolas-Favre's disease (lymphogranuloma venereum) in mice.—The authors previously reported that penicillin subcutaneously administered to mice (in a total dose of 1,000,000 Oxford units per kilogram) prevented lymphogranuloma encephalitis by a simultaneous intracerebral injection of the virus. In 60 percent of the cases, passages proved that the brain tissue was entirely sterile.

In this paper they report that penicillin had also a curative effect. Mice were intracerebrally infected with lymphogranuloma virus. Seven days later they received 4 subcutaneous injections of 5,000 O. u. (a total dose of 1,000,000 O. u. per kilogram). Sixteen days after treatment the animals were killed. Of 5 mice treated, 4 showed brain lesions of various degree on histologic examination. From each mouse brain, passages were made to 2 new mice. All passages except 1 had negative results.

Control experiments had the following results: (1) of 6 infected but untreated mice, 5 showed brain lesions; (2) of 6 infected mice, treated with penicillin, 4 did not show brain lesions; (3) of 6 treated mice, 4 gave negative results by passages.

Prevention of experimental syphilis in rabbits with penicillin.—In a previous preliminary report, the authors found that penicillin has an incontestable, although not constant preventive effect upon experimental syphilitic infection in rabbits.

In this communication, they report experiments which proved that intramuscularly administered penicillin is capable of preventing experimental syphilitic infection in rabbits in 100 percent of the tests if it is given in sufficiently high doses (total dose 40,000 Oxford units per kilogram) and in a short time. The medication resulted not only in prevention of the chancre but in a complete sterilizing cure of the animals, even if medication started 8 days after infection.

The authors used the following experimental technic. Twelve rabbits were subscrotally infected with syphilis virus. Six of the animals were given 4 intramuscular injections of 2,000 O. u. of penicillin for 5 days (total of 20 injections) immediately after inoculation; the other 6 animals received the same treatment 8 days after inoculation. From each of the infected animals, passages were made to 3 new rabbits by inoculation with popliteal lymph glands (from the first 6 animals after 37 days; from the second 6 animals after 44 days). All the passages gave negative results. By control experiments, the authors showed (1) that the original inoculation with syphilis virus was effective in untreated animals and (2) that animals in which inoculation with lymph gland material from infected but treated rabbits gave negative results were susceptible for infection with syphilis virus.

American penicillin preparations were used for the experiments.

Studies regarding immunity in experimental syphilis.—The problem of immunity in syphilis has always been a controversial issue. One theory (Neisser, Kolle) maintains that immunity depends on the persistence of the infection (survival of spirochetes) and another one (Chesney and Kemp) assumes an acquired immunity which is entirely independent of the presence of spirochetes.

The author and his coworkers, Collart and Pulvenis, studied the problem by making experiments covering a period of several years. A number of rabbits were infected with syphilis by unilateral subscrotal inoculation. From 100 to 120 days following inoculation, the animals were given intensive treatment with intravenous arsenobenzol injections at a dose corresponding to that of 42 gm. in a man weighing 60 kg. At various intervals (from 2 to 10 months) after termination of treatment, passages of inguinal and popliteal lymph glands of the infected animals to other rabbits were done in order to verify the therapeutic effect. Immediately thereafter, the unused side of the scrotum was inoculated with the same syphilis strain. From those animals that did not develop lesions at the site of the second inoculation, another transplantation of lymph glands was done in order to detect a possible symptomless reinfection. Moreover, in order to make sure that it was not because of the preceding arsenobenzol medication that the result of the second inoculation was negative and a false appearance of immunity was created, 7 new rabbits were treated with the same doses of arsenobenzol and, thereafter, inoculated. All showed syphilitic lesions after 25 days.

These experiments showed that intensive treatment with arsenobenzol, instituted a long time after the infection, resulted in the disappearance of spirochetes as demonstrated by the negative passages. In addition, microscopic examination of the lymph glands with silver impregnation did not reveal spirochetes or spirochetogenic granules. Therefore, the author concludes that the immunity cannot depend on the persistence of parasites but must be considered an acquired one which developed at least 3 months prior to the treatment.

The time which passes from termination of treatment to the moment of reinoculation is the dominant factor for the differences in the results obtained. After 3 months, only 3 percent of the reinoculated animals developed syphilis, 6 percent presented symptomless reinfection, and 91 percent were immune in spite of sterilization (destruction of spirochetes). The comparison of the percentages shows that the immunity persisting after the sterilizing treatment decreases after about 1 year.

Three principal aspects are found in animals which receive late treatment and, consequently, are reinoculated at varying intervals: total immunity with destruction of reinoculated spirochetes; tissue immunity which does not prevent establishment of symptomless reinfection by reinoculation; and recuperation of initial receptivity. These different successive phases are significant for the relative and transitory character of immunity of syphilis observed after intensive treatment.

Bull. U. S. Army M. Dept., Carlisle Barracks

*Revised treatment schedules for syphilis. News and Comment. 5: 611–612, June 1946.

Revised treatment schedules for syphilis.—It has been shown that commercial penicillins contain one or more of four chemically distinct but related crystalline species which have been labeled G, X, F, and K. Studies of K species in vitro and in vivo reveal that although it appears to be as effective in vitro as the other species it yields very poor concentrations in the blood. At 30 minutes after a given dose, K may produce no blood level or a very low level and none thereafter.

In anticipation of the development of pure crystalline species of penicillin, the following schedules are to be regarded as tentative only:

1. The initial course for seronegative primary syphilis will be 60 intramuscular injections of 100,000 units of pen cillin at 3-hour intervals, day and nigh for a total dose of 6,000,000 units in 7½ days. For seropositive primary, secon ary, and latent syphilis, the initial cours will be 80 intramuscular injections 100,000 units of penicillin at 3-hour in tervals, day and night, for a total dose 8,000,000 units in 10 days.

2. For the first relapse or reinfectio the patient will receive the 8,000,00 unit course of penicillin in addition t 60 mg. of mapharsen twice weekly for weeks and 200 mg. (1½ cc.) of bismut subsalicylate in oil once weekly for weeks, the courses of bismuth an mapharsen to be started concurrentl with the course of penicillin.

3. For the second relapse, the patien will be treated with a 26-week maphar sen and bismuth schedule.

Canad. M. A. J., Montreal
Examination of cerebrospinal fluid in syph ilis. V. D. Briefs. 54: 274, Mar. 194

Canada's Health & Welfare, Ottawa
Four-sector front against venereal diseas B. D. B. Layton. 1: 3, May 1946.

Cleveland VD Inform., Cleveland
The Cleveland V. D. control program Chester M. Sidell. 2: 2–3, June 1946.

Health News Service, Toronto
Two more provinces approve premarita serological tests. P. 1, Apr. 26, 1946.

Hosp. Corps Quart., Washington
VD control measures in Europe. Hugh G Oliver. 19: 16, Aug. 1946.

Hospital, Rio de Janeiro
Penicilina pela boca. Domonstracão de su atividade pela cura clinica da bouba (Nota prévia.) (The curative action i yaws of penicillin taken by mouth.) F N. Guimarães. 28: 229–232, Aug. 1945

Hygeia, Chicago
Venereal disease tests for the masses Walton H. Y. Smith. 24: 186–187, 237 Mar. 1946.
Sight loss from V. D. 24: 213, Mar. 1946.

Médecine, Paris
*Causes of abortion and the exaggerate role attributed to syphilis. M. Lacomm and Chr. Lassablière. 27: 2–5, Feb. 1946.

Causes of abortion and the exaggerated role attributed to syphilis.—In spite of the fact that it has been proved y many writers that the role of syphilis s a cause of abortion is greatly exaggerated, many physicians still consider : the dominant etiologic factor.

Over a period of 3 years, the authors egistered daily all abortions and fetal eaths occurring in their services in two 'aris hospitals and tried to establish the auses to which they could be attributed. 'hey registered only those cases in which he fetus was less than 7 months old or veighed less than 1,800 gm. They excluded from their statistics all abortions n pregnancies of less than 3 months' duration (almost all of which are septic), ll provoked abortions, and all abortions n multiple pregnancies (which represent special problem). In 68 cases in which lefinite causes of abortion could be demonstrated, syphilis was found in 19 nstances. Among 83 cases in which the probable cause was found, syphilis occurred in 5 instances. In 173 cases it vas not possible to ascertain the etiology; in these, there were 9 fetal malformations of unknown origin.

The authors object to the almost routinely administered antisyphilitic treatment of women who abort. Even repeated abortions cannot be considered definite sign of syphilis.

NEW ENGLAND J. MED., BOSTON
*The treatment of bacterial arthritis with penicillin. Harold L. Hirsh, Henry L. Feffer and Harry F. Dowling, 234 : 853–856, June 27, 1946.

The treatment of bacterial arthritis with penicillin.—Seventeen patients (9 men and 8 women) with gonococcal arthritis were treated with penicillin. In 15 cases the arthritis was acute and in the remaining 2 patients the disease had been present for 3 and 6 months, respectively.

The first 7 patients with acute gonococcal arthritis were given total dosages of from 240,000 to 1,000,000 units of penicillin intramuscularly for periods of 8 to 30 hours or, as in 1 case, orally (2,400,000 units total) for 48 hours. These regimens were uniformly unsuccessful. Since it was concluded that more prolonged treatment was necessary, 8 patients subsequently treated were given intramuscular injections approximating 10,000 units an hour for a period of at least 5 days with total dosages ranging from 925,000 to 2,000,000 units. Improvement was not apparent for at least 3 days in 5 patients and not for 5 to 8 days in 3. All 8 of the patients with acute gonococcal arthritis treated by this method recovered completely.

The 2 patients with chronic gonococcal arthritis did not improve when given intramuscular penicillin, supplemented in 1 case by 3 intra-articular injections. In view of the results in patients with the acute form of the disease, the authors are of the opinion that better results might have been obtained in chronic arthritis if treatment had been extended over a longer period. A table is presented showing results of the penicillin treatment in the 17 patients.

The authors state that the value of penicillin in the treatment of acute gonococcal arthritis is an unsettled question at the present time. They recommend a dosage schedule of 25,000 units injected intramuscularly every 3 hours for at least 5 days, or longer if needed.

PENNSYLVANIA M. J., HARRISBURG
Tyrothricin. A review of selected literature on the subject. Franklin C. Massey. 49 : 1090–1094, July 1946.

PROC. STAFF MEET., MAYO CLIN., ROCHESTER
The effect of penicillin on experimental infections with the virus of venereal lymphogranuloma. Fordyce R. Heilman. 21 : 237–240, June 12, 1946.

SCIENCE, LANCASTER
Urinary recovery of penicillin after oral administration with antacids and buffers. Milton J. Golden and Franz M. Neumeier. 104 : 102–104, Aug. 2, 1946.

SOUTH AFRICAN M. J., CAPE TOWN
New era developing in struggle against venereal diseases. 11 : 307–308, June 8, 1946.

SOUTH. M. J., BIRMINGHAM
Yaws : treatment with penicillin. William D. Stubenbord. 39 : 608–609, Aug. 1946.

U. S. NAV. M. BULL., WASHINGTON
Ophthalmic disease treated with penicillin. Report of two cases. Arnold F. Sammis, Jr. 46 : 912–915, June 1946.

WEST VIRGINIA M. J., CHARLESTON
Committee on syphilis. Committee Reports. Howard T. Phillips. 42 : 170, June 1946.

Cases of Syphilis and Gonorrhea Reported for the First Time in States, Territorie and Possessions for the First 6 Months of 1946

Area	Syphilis										Gonorrhea	
	Total [1]		Primary and secondary		Early latent		Late and late latent		Congenital			
	June	Jan.–June	June	Jan.–June	June	Jan.–June	June	Jan.–June	June	Jan.–June	June	Jan. Jun
Alabama	1,159	6,286	426	1,707	293	1,684	94	919	43	164	1,162	6,4
Arizona	158	856	57	341	40	240	49	238	12	37	107	7
Arkansas	852	5,321	198	1,198	321	2,044	276	1,795	57	282	242	3,2
California	1,639	12,064	435	2,887	432	3,379	718	5,192	35	334	2,329	15,4
Colorado	199	1,371	56	468	74	400	61	449	8	54	203	1,2
Connecticut	237	1,134	44	259	27	206	142	511	5	36	137	6
Delaware	94	565	41	235	27	173	12	87	10	23	22	1
District of Columbia	396	1,684	138	545	156	643	92	414	6	26	1,119	4,6
Florida	1,347	7,707	351	1,708	425	3,080	351	2,003	38	218	1,558	8,7
Georgia [4]	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Idaho	51	323	26	100	12	70	5	93	2	11	47	2
Illinois	1,395	11,591	472	3,304	387	3,462	479	4,502	33	299	2,928	18,6
Indiana	514	3,244	117	743	68	487	139	1,068	20	89	307	1,6
Iowa	139	874	53	339	42	236	35	229	2	14	173	1,1
Kansas	148	982	42	323	39	270	58	350	9	39	205	1,4
Kentucky	536	3,651	232	1,632	131	920	92	659	18	118	609	4,1
Louisiana	1,614	9,662	522	2,742	385	2,470	218	1,377	68	376	1,160	7,2
Maine	65	447	32	232	13	57	14	120	4	18	66	5
Maryland	776	4,127	234	1,233	164	917	229	989	18	76	529	2,7
Massachusetts	362	2,777	127	1,105	0	0	217	1,568	18	104	308	2,4
Michigan	1,435	8,731	358	2,254	349	2,190	516	3,004	34	208	933	6,3
Minnesota	114	822	37	265	19	126	48	357	6	28	161	1,2
Mississippi [4]	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Missouri	864	6,139	263	1,701	289	2,277	246	1,909	30	161	690	4,3
Montana	30	166	15	57	12	49	0	21	1	5	20	1
Nebraska	260	1,285	46	273	56	320	104	453	7	41	120	8
Nevada	39	272	6	52	2	2	18	124	2	9	22	1
New Hampshire	32	142	12	40	6	22	10	65	4	14	34	2
New Jersey	681	4,727	140	918	248	1,647	272	2,001	18	136	494	2,7
New Mexico	160	806	58	223	53	246	45	308	4	29	158	7
New York	3,267	18,992	728	4,119	812	4,935	1,576	9,284	102	496	[2] 2,199	[2] 11,9
North Carolina	753	4,526	344	2,074	275	1,641	86	590	48	221	1,298	7,4
North Dakota	26	147	10	69	8	26	1	24	0	2	59	3
Ohio	1,435	9,742	376	2,853	441	2,964	571	3,558	47	306	651	3,9
Oklahoma	1,242	4,140	109	780	269	1,238	729	1,444	55	212	843	5,5
Oregon	85	666	26	190	9	98	39	295	3	16	158	1,0
Pennsylvania	979	7,155	213	1,642	301	2,277	365	2,476	51	331	[3] 459	[3] 2,5
Rhode Island	133	691	31	174	16	65	46	293	7	35	48	2
South Carolina	442	3,534	208	1,386	79	1,117	112	722	21	156	1,132	5,5
South Dakota	39	226	17	88	9	45	11	77	1	14	50	3
Tennessee	1,303	7,133	399	2,149	481	2,609	394	2,206	26	139	2,619	12,4
Texas	1,072	6,014	305	1,936	390	2,396	186	1,193	45	262	1,142	7,5
Utah	47	315	16	112	4	51	24	144	3	8	42	3
Vermont	23	130	11	64	2	14	6	39	1	9	50	2
Virginia	912	6,246	324	1,778	345	2,505	221	1,726	18	165	1,159	6,7
Washington	175	1,302	56	375	47	339	56	472	8	37	315	2,2
West Virginia	401	3,582	145	1,674	111	887	121	803	4	101	443	3,9
Wisconsin	180	1,379	37	323	38	312	84	623	9	19	83	8
Wyoming	29	158	8	40	7	40	14	67	0	2	22	1
Total United States	27,839	173,834	7,901	48,710	7,714	50,176	9,182	56,841	961	5,480	28,615	172,0
Alaska	30	84	25	30	4	22	1	20	0	5	92	4
Canal Zone	17	168	8	35	3	37	5	80	1	5	85	4
Hawaii	42	462	6	36	5	35	29	352	1	36	36	2
Puerto Rico	644	4,571	84	587	253	1,699	167	1,170	139	1,105	465	2,8
Virgin Islands	4	40	0	6	4	23	0	8	0	3	12	1
Total United States and Possessions	28,576	179,159	8,024	49,404	7,983	51,992	9,384	58,471	1,102	6,634	29,305	176,1

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[1] Includes "Not stated."
[2] New York City only.
[3] Philadelphia only.
[4] No report for June.

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UNITED STATES PUBLIC HEALTH SERVICE

THOMAS PARRAN, *Surgeon General*

Editor: J. R. HELLER, Jr., *Medical Director*
Chief, Venereal Disease Division

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Editorial

This issue of the Journal of Venereal Disease Information is devoted to an examination by public health nurses of their place in the changing pattern of venereal disease control. The role of the nurse in rapid treatment centers, in industry, and in the public clinic is discussed. Articles in future issues will take up the nurse and her part in the control program at still other points of strategic importance.

Possibly no other field of public health has greater need than does venereal disease control for the special combination of skills which constitutes the profession of public health nursing. In addition to the complex medical problems involved, the epidemiologic and societal problems of venereal disease control are often extremely difficult.

The nurse's scientific training qualifies her for furthering the medical policies of the doctor. The specialized academic preparation for public health nursing includes psychosociologic studies that are helpful in dealing with the individual as a member of a family and a community. Finally, her professional qualifications facilitate the development of better understanding between the medical profession and health departments on one hand and various important nonmedical community groups on the other.

With the return to a normal peacetime national life, the present shortage of public health nurses gradually will be alleviated. As this occurs it is hoped that health officers and other physicians will make greater use of the special skills of public health nurses.

In support of this policy, the Public Health Service, at the request of several State health officers, has arranged to assign a limited number of public health nurses to rapid treatment centers where they will be responsible for interviewing patients for information leading to the discovery, diagnosis, and treatment of infected contacts. Patient morale and education will be an important related responsibility.

It is difficult to visualize adequate sustained improvement of venereal disease control unless optimum use is made by health officers, and by the nurses themselves, of the special opportunities and abilities for case finding and patient and community relations that are inherent in the profession of public health nursing.

The Nurse as a Case Finder in Venereal Disease

Hazel Shortal, Nurse Officer (R)

Venereal Disease Division, United States Public Health Service

Any discussion of the place of the nurse in a certain aspect of venereal disease control must necessarily include case finding. The purpose of this paper is to discuss case finding as a separate subject and to examine the place of the nurse in this field.

It is well known that the close nurse-patient relationship provides many opportunities for the establishment of confidences which may be used to good advantage by the public health nurse in case finding. In order to utilize these confidences as a means of promoting early case finding in venereal disease, the nurse must have adequate tools with which to work. An important tool and a prerequisite to the nurse's contribution is a knowledge of the medical essentials—causative organisms, incubation periods, modes of transmission, principles of prevention, and treatment.

Inadequate venereal disease courses in the basic nursing programs have resulted in certain limitations in this area of nursing performance. Until nursing schools include adequate preparation in the venereal diseases, all nurses will not be equipped to do their best work in early case finding.

In some schools, efforts are being made to provide more time in the curriculum for this subject. Nurses actively participating in venereal disease control and health officers, as individuals and as a group, should use every opportunity to stimulate nursing school faculties to continue and to strengthen venereal disease education for student nurses.

Examples of how nurses may aid directly in this educational process are found in several rapid treatment centers. In one center, the chief nurse devotes part of her time each month to a series of conferences with students in one of the local nursing schools. In other rapid treatment centers, student nurses are being given actual work experience in the center. If similar plans could be worked out in all centers, it would, in addition, help reduce the immediate nursing shortages and provide a reservoir of prospective nurse employees.

For the visiting nurse, health department nurse, industrial nurse, and school nurse who may have had inadequate basic preparation in venereal diseases, inservice education is the principal means through which knowledge of syphilis and syphilis control may be provided. Lectures by the health officer, and clinician and the formation of study groups provide some knowledge of the problem. Any other methods which are available should be employed, such as a demonstration tour of the nearest rapid treatment center. Programs for such tours should include a statement of admission policies, types of cases which should be referred, and a demonstration of clinical material. An outline of the center's objectives and the contribution the nurses can make toward the attainment of these objectives should also be given.

In the past, a great part of public health nursing time devoted to venereal disease was confined to the prevention of gonorrheal ophthalmia in the newborn and to syphilis case finding in pregnancy. Such limited functioning is not a true index to the nurse's ability and responsibility, as has been demonstrated in many health departments where she is serving in a much larger capacity.

The four major responsibilities of the public health nurse have long been recognized as:

1. Case finding
2. Case holding
3. Health teaching
4. Care of the sick.

Emphasis has been placed on the terms

"case-finding technics" and "interviewing" to the point where they would seem to have some special and perhaps separate connotations in venereal disease control. It should be remembered that every case of any disease found by whatever method must ultimately be interviewed.

All case finding in public health nursing is based on interviewing—mothers are interviewed and aided regarding their problems in pregnancy, the care of their newborn, child training and development, and guidance of the adolescent; school teachers and pupils frequently are interviewed by the public health nurse. In tuberculosis control, interviewing plays a prominent role, the industrial nurse interviewing employees daily.

As a matter of fact, following just one of the principles of public health nursing—"That services of the public health nurse shall be available to all in the community according to their need"—the nurse in her interviews cuts through a large segment of the population in the community. Because of this, opportunities for case finding are limitless.

Her interviewing technics, some of which are inherent in nursing and some of which might be called applied science or art, are as numerous and varied as the interviews themselves. There should be no standard routine to be followed in employing interviewing for case finding. Such standardization would deny the nurse the privilege of using her initiative and the patient the individualization he deserves. Her case-finding technics are founded on an understanding of the basic philosophy of nursing.

In any given case, a primary consideration is to recognize the patient as a person in whom a health or illness problem exists, rather than to look to the disease which is present in the individual. In doing this, the nurse considers not only the positive signs of disease but the total personality of the individual and the factors in that person's habits of living which have resulted in infection. Such an attitude can serve as her guide in helping the patient, directly or through use of community resources, to protect himself against an environment leading to reinfection.

An attempt to help the patient to reveal his personal reaction to the diagnosis and the immediate difficulties it presents to him establishes a feeling of friendliness and induces confidence. If the patient's uppermost thoughts are of job loss or family rejection, a thorough discussion of the possibilities and indicated adjustments must be considered before the important work of contact tracing can be undertaken.

It has often been said that the period just following diagnosis is an inopportune time to attempt an interpretative or contact-tracing interview. Undoubtedly this is true in some cases. For many patients, however, it is at this point that he feels the greatest need for advice and assistance. A quick sizing-up of each patient and his manifest reactions to the diagnosis will determine whether the nurse-patient conference shall be conducted then or postponed until the patient is better conditioned to his diagnosis.

Regardless of when the conference takes place, sufficient time must be provided to give the patient a feeling that his difficulties are worth listening to and that consideration will be given to his wishes. Unless the patient can get this feeling, he is not likely to see the need for devoting time to discussing the individuals involved in his sex experiences.

A study of the medical record should be made prior to the interview in order to learn as much of the patient's background as possible. The type of neighborhood in which the patient lives, his marital status, physical findings, and diagnosis, in addition to the physician's recommendations, will all have an influence on the approach the nurse is to make. A brief statement from the physician as to his experience with the patient may provide the clues to success in the patient-nurse conference.

The aim in interviewing always is to have the patient reveal all his contacts. For this reason, it is ill-advised to say "From whom do you think you got this?" It is much better to explain to him that his infection was unknowingly passed to him and he, in turn, may be responsible for having passed it on to others; that in order to help these people to have the same opportunity for cure that he is now enjoying it will be necessary to examine any person with whom he has had sexual relations during the time of probable infection or infectivity. (It is necessary to express this in days and weeks specifically related to the type and stage of infection.) The patient's responsibility for preventing further spread should be emphasized; and now that penicillin is providing such rapid cure, it is all the more important to advise the patient of the possibility of reinfecting himself by resuming sexual relations with persons who might be in the very early stages of disease as a result of exposure to him prior to treatment.

The patient is often reluctant to name contacts because of concern over the manner in which the contact might be approached, but satisfaction to the patient may come, and cooperation usually can be gained, by asking him to participate in the procedure of contact tracing. If the patient's attitude toward the contact is wholesome, and he feels an obligation to help this person to secure an examination, he should be permitted to make the explanations.

On the other hand, if the patient vehemently declares that he will "bring her in by the nape of the neck," tact must be employed to persuade him that it would be best to let the agency make the approach to the contact. The patient, knowing the living conditions of the contact, may be able to make the best selection of the various means employed by health agencies in contact tracing, and his opinion should have bearing on the procedure to be followed. A satisfied patient can do much to influence his acquaintances to seek medical attention by making it known that good diagnostic and treatment facilities are available.

It is not only to the diagnosed case and his contacts that the nurse must look for case-finding opportunities in venereal disease. In the routine of her daily visits to the home, industry, school, or clinic, she often is confronted with statements which the alert nurse finds significant in relation to venereal disease. For instance, a wife, in her last few months of pregnancy, may tell the nurse that her husband has become unfaithful and may hint at the presence of disease symptoms. Or she may express concern over the teen-age boy or girl in the family, who may have drifted into bad company reported to have venereal disease. Or perhaps a husband, knowing the confidence his wife has in the nurse, drops by the office to ask her assistance in bringing his wife to an understanding of her marital responsibilities, incidentally revealing, in the course of this visit with the nurse, that he has a slight sore for which he has obtained a salve from the druggist. The adolescent boy or girl, the prospective marriage candidate, the industrial worker whose sexual promiscuity is revealed to the industrial nurse, all provide sources for case finding.

It must be admitted that at the moment the total potential contribution of nursing to venereal disease control is far from being realized. But, until we who have special interest in the problem utilize every opportunity to bring all nursing into active participation in the venereal disease control program, national and local venereal disease control is losing a vast part of the services of a profession which could be a vital force in attaining our ultimate objectives.

Venereal Disease Nursing Within Industry

Norma F. Whiteside, Senior Assistant Nurse Officer (R)

United States Public Health Service

Industry played a major role in wining the war and the industrial nurse ntributed no small part to its success. ecause of her efforts, many man-hours ere saved for production which otherise would have been lost through illess. The venereal diseases were only ne of her responsibilities. What the urse working without medical directors id with that responsibility depended a reat deal upon herself. If she was inerested, there was a good program in her lant; if not, nine chances out of ten not uch was done about venereal diseases. he war is over now; men are returning o civilian jobs; the venereal diseases are till with us. Instead of decreasing with he end of the war, the industrial nurse's esponsibilities for venereal disease conrol have increased. She now has an even greater opportunity to make a worthwhile contribution in this field. What are hese responsibilities? How can she function most effectively in this postwar program? It is particularly the responsibilities of the nurse working alone which we wish to consider, for unless she does something about it, there will probably be no plan for veneral disease control in her plant.

Her first responsibility is to stimulate the interest of management and labor in a good venereal disease educational program. This program should be part of a well-planned health education project and should draw upon all the resources of the community. The nurse must know what these resources are and must be able to guide the health education committee in their use. The type of program will, of necessity, have to be adapted to each industry and to each community, but it must be broad enough to cover all phases of family health. The individual worker is a part of a family and the well-being of that family is reflected in his ability to do his job. The venereal diseases are family diseases and no opportunity to find them or prevent them should be overlooked.

Agencies on a local level from which the nurse and the plant health committee (a joint management and labor committee) might expect assistance in a health education program are the health department, the social hygiene association, the medical society, and the school. On the national level, the American Medical Association, the American Social Hygiene Association, and the U. S. Public Health Service can provide help. There are others, of course. Assistance in planning the program may be had from the health education members of the local staffs as well as from the venereal disease control division of the health department. The local agencies can assist in furnishing speakers, films, posters, and pamphlets for use in the plant. Educational material can also be obtained from the national agencies.

If results are to be obtained from the educational program, facilities must be set up which make it possible to find cases. In making an analysis of case-finding methods in Norfolk, Va., Dr. Harry Pariser found that five times as many individuals with darkfield positive lesions applied voluntarily for aid or were brought in through routine examination as were brought in by active epidemiologic means. With this in mind, ample provision must be made for examination of those persons who suspect infections and voluntarily report, as well as for some type of routine examination.

Before such a program can be put into effect, both labor and management must understand all phases of the anticipated program. The nurse working alone will

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From the Oregon State Board of Health, Portland, Oreg.

need to interpret recommended employment practices for persons having venereal disease infections to both management and labor. The Advisory Committee on the Control of Venereal Diseases has stated that there is no reason for denying employment to an applicant or for discharging an employee because an examination has revealed evidence of syphilis or gonorrhea, provided:

1. That the employee agrees to take such treatment as may be indicated.
2. That, if the stage of the disease is infectious, employment should be delayed or interrupted until such time as a noninfectious stage is established through treatment, and open lesions are healed.
3. That employment should not be delayed or interrupted when syphilis exists in a latent stage.
4. That employment may be deferred or denied only when disabling manifestations exist which would render such individuals industrial hazards to themselves, other employees, or the public.
5. That provision be made, whenever possible, for occupational readjustments of employees who develop disabling manifestations that do not incapacitate them from performing some type of useful work.
6. That workers with syphilis in any of its stages, regardless of past or present treatment status, should be excluded from areas of toxic exposure, and that those having cardiovascular syphilis or neurosyphilis should not be exposed to such physiologic stresses as extremes of temperatures, strenuous physical exertion, or abnormal atmospheric pressure.

When management and labor each understand what they will gain from such a policy they will not be afraid to go along with a program which makes finding of infections possible.

The facilities of the community will determine what provision is to be mac for examinations. It may be that ser logic surveys are the extent of the routir examination and that all suspected case are referred to the health department fc care; or, this may be done in the office c a private physician. Ideally, there shoul be provision for (1) preemployment phy ical examinations which include serologi tests for syphilis and other tests fo venereal diseases as indicated, (2) repea physical examinations annually or as ir dicated, and (3) medical consultation a needed. In making any plans it is ad visable to consult the industrial con mittee of the local medical societ Where there is no medical director in th plant, the nurse is responsible for makin this contact and working out acceptabl plans. The cooperation and assistance o this group will prove invaluable in he entire health program.

Management and labor should clearl understand that the report of the medica examination, including serologic tests an other indicated tests for venereal dis ease, is confidential and must be filed i the nurse's office. When the employee i examined outside the plant and the ex amining physician wishes to keep the rec ord in his office, a copy of the report plu the recommendations for employmen should go to the nurse. Only the recom mendations for employment should go t the personnel office. The nurse shoulc interpert these to the management, anc should assist in job selection made neces sary by the recommendations. In orde to do this, she must know her plant intimately and be able satisfactorily to ex plain to management just how the worke can function in the job selected.

As continued employment is dependent upon carrying treatment to completion some check will need to be made regularly with the treating agency. This is a responsibility of the nurse. Definite plans should be worked out for getting this information at least monthly, and the nurse should follow through with the employee when necessary. With rapid treatment becoming more and more the order of th ay, much of the follow-up will be for osttreatment observation only. This obervation is extremely important but may eem to the employee to be a total waste f time. The nurse can do much to help im understand the importance of this heck and can encourage him to have it egularly. Here the industrial nurse has distinct advantage over nurses in other elds. The worker is easily available; he nurse can see him frequently if necesary or desirable. In order to assist him nd to provide a guide for supervision, he might keep a "tickler" date file or imilar device to indicate when he should e rechecked.

If the employee does lapse from treatment or observation, the nurse should mmediately endeavor to determine the eason and to assist him in making plans o return. If she is unsuccessful, she hould report the employee to the local ealth department for follow-up.

So far, we have discussed venereal disease case finding and treatment only as elated to the physical examination program. The industrial nurse has other important opportunities for case finding as well as opportunities to assist in prevention of infection.

Her health supervision program should include provision for personal counseling with employees. If she is interested and approachable, employees will bring their problems to her. She will have numerous opportunities to assist in straightening out personal problems, some of which by being corrected may prevent cases of venereal disease. This does not mean that every industrial nurse, by right of her job, is going to be able to solve every problem brought to her by all employees. But it does mean that she should know the help that is available in the community and should assist the worker in getting that help.

Included under health supervision are family health problems. One of these which logically could be classified under venereal disease control is the family about to have a new baby. She can help this family to understand good prenatal care, including the necessity for a serologic test for syphilis early in pregnancy and again at about the eighth month. She will know the resources of her community and can assist in getting the best possible care for the expectant mother. Throughout pregnancy, the nurse will be available to answer questions and help smooth out problems which trouble the couple and therefore affect the husband's health and work.

Another opportunity for guidance comes when the young couple about to be married seeks her advice. She can explain the importance of entering marriage in the best possible health and can point out the value of a complete physical examination including a serologic test for syphilis. Because she is a friend who can be trusted, such couples will return to the nurse when other problems arise which might threaten family life. In this way, she can do much to strengthen the family life of the employees of her plant and help build a firm foundation for prevention of the venereal diseases.

Then there are the married workers as well as the single persons who come to her because they are in a "jam." They think "something is wrong" and do not quite know what to do about it. The nurse has an excellent opportunity, not only to get these workers under good medical care and to interpret their disease to them should they prove to be infected but also to assist in active epidemiologic investigation. These workers know she is interested in them and their welfare and that she will help them in every way possible. They will more readily divulge the names of their contacts to such a person when shown the necessity for it. In this, the industrial nurse can render a very valuable service because with the shortened treatment plan, unless these contacts are diagnosed and treated at once, there is great danger of the employees being reinfected. She may either make the necessary arrangements for the examination of contacts or refer them to the health department for follow-up.

When it is necessary for employees to be absent from work for treatment, it is the responsibility of the nurse to make such arrangements. Here again, it must be understood that the nature of the illness is not to be divulged. Employees will not hesitate to report infection if they can be sure of this policy.

The industrial nurse is in a strategic position to work with other agencies on this problem of venereal disease control. Probably the most important of these agencies is the health department. Persons with whom health department officials wish to make contact regarding possible venereal disease infection or lapse from treatment may be reached through the nurse. Frequently she can be the "go between," making all arrangements for examination or investigating cause of treatment lapse. This protects the worker, saves unnecessary loss of time from the job, and assists the health department.

Reporting of diagnosed cases of venereal disease to health departments for statistical purposes is a responsibility of the physician making the diagnosis. Frequently, however, this proves to be the most difficult job the doctor has to do. The nurse can assist both doctor and health department by arrangement with the examining physician to make out the report cards from the information which she receives for her confidential file.

The industrial plant is not an isolated unit but is part of the general community. Its employees are members of families who live and play in that community. No matter how fine the recreation or education program may [illegible] which is set up within the industry, unless there is a carry-over into an adequate community program, it cannot be completely effective. There should be a good venereal disease education program, adequate facilities for wholesome recreation, decent housing, and community action to eliminate those elements which are destructive to family life. The industrial plant can lend vigorous support to such a program if it is aware of its obligations and opportunities. The nurse can stimulate management and labor to this larger interes She can help the plant health educatio committee to take leadership in con munity affairs. All this may seem to th nurse to be a far cry from venereal di ease control within industry. If sh considers, however, that prevention is major part of control, she will see tha reducing the possibilities for infectio within the community will reduce th number of cases which must be treated i the plant. Participation in a communit venereal disease control program, then, i a logical part of the nursing prograr within industry.

Venereal disease control is a legit mate function of industrial nursing. Th nurse is obligated to work for a good ve nereal disease education program, fc fair employment practices, and for prov sion for examination facilities. Beyon this, the program should be limited onl by her own interests and vision. Th more interested she becomes in this prol lem, the greater will be the possibilitie

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The Clinic Nurse in Venereal Disease

Philomene E. Lenz, Assistant Nurse Officer (R)
United States Public Health Service

The clinic nurse has opportunities to lay a major role in venereal disease conrol programs. Through her close assoiations she may serve as liaison between he doctor and the patient, between the patient and his family, and between the clinic and the community. She may assist in winning the cooperation of private physicians, health agencies, hospials, civic organizations, and in influencng and winning public support. Control of venereal disease depends to a large extent upon voluntary cooperation between the public and the medical, nursing, and other professional groups.

Venereal disease control requires team work which is the natural outcome of mutual understanding and appreciation. Owing to the shortage of doctors, many clinics do not have a full-time medical director and it often falls upon the nurse to initiate and to encourage staff meetings and group discussions so that the policies and objectives of the clinic may be discussed; to determine local problems, facilities, and needs with reference to venereal disease; to introduce new staff members to the policies of the clinic; and to make all staff members feel that they have an important part in the clinic program.

Technical knowledge and skill, however, are not the sole criteria in the selection of a clinic nurse. She must also have an attractive personality and she must be able to win the confidence and respect of colleagues and patients. Better relationships will be brought about between the clinic staff, private physicians, social workers, and other professional groups through an understanding of their respective responsibilities in the venereal disease control program.

The clinic nurse is responsible to a large extent for the atmosphere of the clinic, an important factor in securing the confidence and cooperation of the patients. She is responsible for nursing technics and procedures, for setting up the clinic examination rooms and treatment rooms, for the preparation of drugs and materials; she also assists the physician with examinations and in some instances administers treatment. As custodian of the medical supplies and equipment, she should see that these are available and in good condition. Too often a patient does not return for treatment because the nurse or technician was not skilled in the administration of intravenous and intramuscular injections or because a dull needle was used. The nurse administering the various drugs must be on the alert for reactions and report to the doctor any symptoms which may contraindicate the administration of the drug.

The nurse should see that the clinic is clean, well lighted, and well ventilated. The physical arrangement should be such as to offer privacy for history taking, physical examinations, and the administration of treatment. Waiting rooms should be neat and cheerful with adequate seating space. Pertinent literature, including up-to-date pamphlets and magazines, should be available. Posters, drawings, and other illustrative material can be decorative as well as instructive.

The nurse assists in the establishment of adequate record systems. Records should be complete, current, and accessible. The Venereal Disease Division of the U. S. Public Health Service has record analysts who may be called upon to assist in establishing a good record system. An effective program for the control of the venereal diseases depends to a large extent on the uniformity, accuracy, and completeness of reporting.

Each patient should be approached in an individual manner, with an understanding on the part of the clinic nurse of his mental and emotional problems.

From U. S. Public Health Service, District No. 4, New Orleans, La.

Patients should be treated with courtesy and kindness throughout each visit. Newly infected persons usually come to the clinic worried and distressed, with a feeling of shame because they have venereal disease. A display of irritation, indifference, or haste may cause the patient to become discouraged, uncooperative, and may develop in him an attitude of "Oh, what's the use!" The kindness and efficiency of the clinic staff at the time of the first visit usually win the confidence of the patient and insure his cooperation.

Visits to the clinic should provide the patient with valuable information concerning general health measures as well as venereal diseases. An understanding and acceptance of his responsibility in relation to treatment is of primary importance in the prevention of disability in the patient and for the protection of others. Fundamental, sound, and up-to-date information concerning the cause, spread, treatment, and possibility of cure of the venereal diseases should be provided. Every contact that the patient has in the clinic, whether it be with the physician, clinic nurse, public health nurse, or other workers, is of paramount importance in aiding him to accept the diagnosis and in persuading him to follow the course of treatment prescribed in accordance with his individual needs. These are factors in paving the way for the patient to participate actively in a coordinated effort to return him to health.

On occasions when it becomes the duty of the clinic nurse to explain to the patient the physician's recommendations for his medical care and to interpret the need for examination of contacts, the nurse should endeavor to give the patient a clear explanation of his particular situation. At this time it is important to impress upon the patient the necessity of receiving adequate treatment; that treatment if not completed may cause a relapse with the recurrence of infectious lesions; that too little treatment is worse than none at all as it may increase the possibility of nerve involvement and other late manifestations; and that complete treatment now may prevent lasting illness or disability.

Obtaining contact information requires tact and ingenuity. Privacy must be provided for the interview and every effort should be made to impress upon the patient that all information he may give will be treated confidentially. It is important that adequate information be obtained to enable the nurse or field investigator to locate contacts and bring them in for examination. The nurse should point out the necessity for immediate examination of all contacts because of their possible need for treatment and their potential danger to the community. The fairness in giving his contacts the advantage of early examination should be stressed and an effort made to help the patient to accept his responsibility toward his contacts, his family, and the community. Nearly all patients will respond by giving the desired information and will assist in bringing in their contacts for examination if they are made to realize the importance of their part in the control and eradication of venereal disease.

When the patient is to be sent to the rapid treatment center the nurse helps to arrange transportation. She sees that he has clear instructions as to clothing and other necessary articles needed while he is in the hospital. She may assist him in making arrangements with his employer for sick leave or a leave of absence and in making arrangements for the care of his family while he is hospitalized. If he is the breadwinner, it is sometimes necessary to secure financial aid by referring him to a welfare agency. The nurse can aid in making arrangements for members of the patient's family and other contacts to report to their private physicians or to the clinic for blood tests and physical examinations.

After the patient has completed treatment at the rapid treatment center and has returned to the clinic, the nurse assists in giving clear instructions as to posttreatment examinations. If no specific follow-up instructions are ordered by the doctor, the nurse should encourage voluntary return for periodic posttreatment examinations. The patient should understand that the need for this is based on the possibility of clinical relapse and he fact that treatment does not prevent reinfection.

Such patient education is a continuous process throughout the course of treatment. In addition to the information and explanations which are an integral part of every visit to the clinic, a planned educational program for the public and the patient should be included in clinic activities. The use of illustrative materials—leaflets, posters, movies, and slides—is essential in getting the message across. Educational material should emphasize the importance of the following points:

1. Early diagnosis of venereal disease
2. Routine serologic tests for everyone
3. Adequate treatment at an early stage of the infection
4. Premarital and prenatal examinations for syphilis
5. Congenital syphilis and how it may be prevented
6. Late syphilis manifestations
7. Good personal hygiene and general health measures
8. Prevention of infection
9. The safe and profitable employment of infected persons under proper treatment.

In the venereal disease control program of the future, the clinic nurse will continue her efforts toward early case finding and referral of early venereal disease cases to the proper treatment centers. She will assist in securing early diagnosis and adequate treatment for venereal disease patients and contacts, in the prevention of congenital syphilis, in the treatment of early neurosyphilis cases, and in the treatment of late latent cases to retard or arrest late manifestations. She will intensify her efforts in the education of the patient and the public in the prevention and final eradication of venereal disease.

The Public Health Nurse in the Rapid Treatment Center

Anne M. Burns, Nurse Coordinator

Central Ohio Rapid Treatment Center

Whereas a few years ago the vast majority of syphilis patients were treated in outpatient departments or clinics requiring attendance for over a year, patients today, if hospitalized, may complete treatment in a little over a week and a half. Many of these patients are being treated in facilities set up specifically for this purpose. These hospitals are known as rapid treatment centers and are located in communities where the greatest number of persons can be served and where the venereal disease problem is most acute.

In the rapid treatment center program, the public health nurse plays a vital role.

1. She is primarily responsible for finding new infections by initiating or supplementing the work of the referral agency in epidemiologic investigations.
2. She educates the patient as to the seriousness of his disease.
3. She emphasizes to the patient the importance of maintaining posttreatment and medical observation.
4. She teaches—through individual and group discussion, use of literature, visual aids, and movies—the social hygiene as well as medical aspects of disease.
5. The public health nurse acts as a liaison between the patient, the rapid treatment center, and the community.

From Ohio State Department of Health, Columbus, Ohio.

The nurse must have not only the factual knowledge regarding venereal disease and its treatment but a sympathetic understanding of people and their individual problems. She must realize that the social effects of disease are determined by the patient's attitude, the attitude of his family and friends, and the attitude of the community. Interest and assistance in the patient's adjustment to his social life are a necessary part of treatment of the disease. The public health nurse has been trained especially to treat the patient as a whole and to recognize the relationship of disease to social and economic factors.

Good rapport can be established with the patient in the 10 or 12 days of residence in the rapid treatment center. The patient who is treated for syphilis in the clinic is usually seen only at weekly or biweekly intervals. The following factors may prohibit a successful clinic interview: The physical set-up may not be conducive to privacy; the nurse may be limited in the amount of time she can give to each individual; the clinic patient may be concerned constantly with problems of working hours, care of home or children, fear of being recognized, bus connections, or various matters not directly related to his diagnosis and treatment. On the other hand, the patient in the rapid treatment center, if he has been well prepared for hospitalization, is free from such worries and, as a result of this freedom, is more receptive to educational methods. Experience as interviewing nurse in a rapid treatment center has made me aware of the extensive opportunities in this particular phase of the control program.

The following discussion concerns policies of the Central Ohio Rapid Treatment Center, some of which might be adapted for use in other rapid treatment centers.

A very important part of the control program in this center is patient education and use of contact information for epidemiologic investigation. How are these objectives accomplished? Patient education is the primary function and it is accomplished with the cooperation and assistance of the entire personnel. It begins when the patient enters the hospital and it continues after he leaves. The medical officer, ward nurse, matron, interviewing nurse—all must cooperate in the educational program. The interpretative interviews are used as a means of patient education. In a 12-day hospitalization period the patient often has a minimum of three or four personal interviews in addition to participation in two group discussions. The personal interview gives the patient an opportunity to express his desire for help in his personal adjustments.

Education of the patient to reveal his contacts is of utmost importance. Some time and effort must go into building up a relationship which gives the patient confidence to talk freely and so dispel many of the barriers and superstitions present. After the clarification of diagnosis and treatment, the next step is to explain methods of contact investigation. An interpretation of chains of infection with use of visual aids is helpful. It is necessary that the patient understands methods of contact investigation especially the confidential nature of this information and the way in which all such information is utilized.

The multiple-epidemiologic forms for contact reporting are used in this center. The completion of the form is made a joint responsibility. Experience has shown that the patient does not resent the numerous questions asked regarding contacts when he understands why it is necessary and how the multiple form is used to give privacy to the patient but adequate identifying information to the investigating agent. Procedures of contact investigation are explained to the patient. When he expresses a desire to arrange for examination of his contacts, he is supplied with information on available medical resources in his community. The meaning of the exposure period is explained as that time during which the patient may have been exposed and during which time he may have exposed others. The patient is encouraged to feel that it is his moral responsibility to help to identify all contacts and so give them ie benefit of medical attention and stop ie spread of the disease. In this way, ie patient usually feels less resentful ward one individual and indicates a illingness to have all contacts examined. t is found preferable to avoid speaking f a contact as a source of infection.

The identifying information concerning ll persons exposed to a venereal disease s supplied to the State health departent, which then forwards this informaion to the local health department, where he necessary investigation is made. The esults are then tabulated and rerouted ack to the rapid treatment center. In his way the interviewing nurse can comlete the history of the individual epiemiologic investigation and thus suppleent information as the case may reuire. This reporting system enables the urse to evaluate her work and improve echnics in contact reporting. The coperation of the patient has been enisted to such an extent that he frequently eturns to his own local health departnent and helps in identifying the conacts. The patient also sends completed nformation that he was not able to suply at the time of hospitalization.

A technic used in patient education is he group discussion, which perhaps is ne of the most valuable assets in our apid treatment center program. Feelngs of guilt and of being a social outcast re a common mental state of the infected atient. His role as a patient in a group ermits him to see others with venereal lisease and helps to minimize the social tigma. Each patient is at the center for reatment, so there is no attempt to coneal diagnosis, and the element of shame is decreased. In the group discussions in ur center each patient tells of the symptoms peculiar to his individual case and how he came to ask for medical help. Literature or movies cannot compare with this type of education. The many manifestations of syphilis are present in the patients as visual aids and are observed and discussed freely. Each patient is more than willing to participate in the discussion. This opens the gateway to discussion of a venereal disease control program and the necessity of premarital and prenatal examinations, personal hygiene, and routine health examinations.

In these groups, contact investigation with its many implications is discussed. Frequently patients are present who are under treatment as a result of such an investigation and these cases are used for demonstration purposes. Discussions are always informal and are held in the ward; male and female patients are separated. Sometimes it is called "school" and the patients refer to their discharge papers from the center as "diplomas." Women usually participate in these discussions more freely than men. However, many of the men have had some venereal disease education while in the service, and this information has been helpful in promoting their participation.

Patient education is also conducted through use of selected literature and available movies. Increased interest in the venereal diseases has recently been aroused by new literature. Patients often ask if they can take these booklets and pamphlets to their friends.

The interviewing nurse in the rapid treatment center finds that her problems are somewhat different from those of the nurse in the outpatient clinic. Patients come to the rapid treatment center from both rural and urban areas and their problems are as varied as their backgrounds. Usually the patient has heard his diagnosis, so the first shock of accepting this is over. He now is willing and ready to accept treatment. The nurse, then, should have knowledge of the facts of venereal disease, prevention, diagnosis, prognosis, and methods of treatment. She should be familiar with the functions and procedures carried out by all personnel, particularly as they bear on reactions and attitudes of the patient. It is essential for the interviewing nurse to have knowledge of the venereal disease control laws, and their enforcement in the particular area in which the patient resides. Also, it is important for her to know available community agencies for welfare and recreation and the public health agencies to which she may refer patients for general health matters such as prenatal care, hospitalization for other than venereal diseases, and procedures for adoption of illegitimate babies.

The public health nurse must be able to assist with the problems which are inherent in the following questions frequently asked by patients:

What can I do to keep my job?
Should my employer know the diagnosis?
When can I obtain a marriage license?
Should I, a returned veteran, tell my wife or my family of my infection acquired while overseas?

These and numerous other questions make one well aware that the medical treatment of the disease and solution of the related social problems are component parts of total patient care. The inseparability of the medical and social aspects of the venereal diseases may be illustrated by comment which has been made tha “syphilis and gonorrhea leave a scar tha penicillin never can erase.” The publi health nurse, who has been especiall trained to treat the patient as a whole may help to minimize the social effects o venereal disease by assisting him in an difficulties in which he might be involved

The public health nurse in the rapi treatment center, through education o the patient, can contribute to the venereal disease control program, both i the public health field of the control o communicable diseases and also in th social hygiene program. These objective can be reached by means of (a) interpretative interviews, (b) contact educatio interviews, (c) group discussions, (d pamphlets and literature, and (e) visua aids.

CURRENT LITERATURE

Note: Abstracts of any article listed below are available on request. In addition, abstracts of all articles concerned with venereal diseases or related subjects which have been published in the better known journals both here and abroad during the past 20 years are in the files. These are open to workers in the field. An asterisk (*) before a title indicates that the article is abstracted below.

Am. J. Dis. Child., Chicago

Coronary occlusive disease in infants and in children. Walter A. Stryker. 71 : 280–300, Mar. 1946.

Am. J. M. Sc., Philadelphia

Successful combined treatment of penicillin-resistant gonorrhea. Andrew G. Franks. 211 : 553–555, May 1946.

A study of the effect of bleeding and of repeated blood donation on serologic tests for syphilis. Fred Boerner, Sondra Nemser and John H. Stokes. 211 : 571–576, May 1946.

Am. J. Ophth., Cincinnati

*Relation of the eye to immunity in syphilis, with special reference to the pathogenesis of interstitial keratitis. Alan C. Woods and Alan M. Chesney. 29 : 389–401, Apr. 1946.

Penicillin in gonococcic conjunctivitis; it use in 30 cases, compared with the sulfonamides in 173 cases. Philip Meriwether Lewis. 29 : 694–698, June 1946

Relation of the eye to immunity i syphilis, with special reference to th pathogenesis of interstitial keratitis.— A series of experiments is reported i summary, which indicates that: (a) th corneas of rabbits with experimenta syphilis induced by intratesticular inoculation do not always share in the immunity to reinfection which develops durin the course of the syphilitic infection; (b) direct inoculation of the cornea is followed by the development, in that tissue of a local resistant state toward those or nisms, although in some instances the rotection thus conferred is either not bsolute or is not permanent; (c) vascurization of the cornea appears to be factor in influencing favorably the delopment of a local resistant state.

The bearing of these findings upon the thogenesis of interstitial keratitis and pon other phenomena associated with is condition is discussed. It is suggested at the usual late occurrence of the leons of interstitial keratitis may be due a combination of lack of local immuity in the cornea in some cases of conenital syphilis, plus the occurrence of inor traumatic incidents as the initiatg factor. The fact that the lesions of terstitial keratitis will heal spontaneusly when vascularization occurs may be xplained on the basis of the development a local immunity, presumably through ntibodies coming from the blood. The ndency of the lesions of interstitial kertitis to recur may be related to the fading f a local immunity.

M. J. PATH., ANN ARBOR

*Studies on chancroid. I. Observations on the histology with an evaluation of biopsy as a diagnostic procedure. Walter H. Sheldon and Albert Heyman. 22: 415–426, Mar. 1946.

Studies on chancroid. I. Observations n the histology with an evaluation of iopsy as a diagnostic procedure.—The uthors discuss the histologic appearance f chancroid and the usefulness of biopsy s a diagnostic procedure.

The histologic study was based upon 5 specimens taken for biopsy from 125 atients selected for a special study of ymphogranuloma venereum and chanroid. Tissue specimens were obtained ithout anesthesia with a Gaylors biopsy orceps from the base of the ulcer, usually ith little pain. Cultures were taken rom the primary lesion or from an autonoculation, and a culture was reported s positive only when the typical tangled hains of gram-negative coccobacilli, the ucrey bacillus, were found.

A detailed description is given of a ypical lesion of about 2 to 3 weeks' duraion, as reconstructed from the study of numerous specimens. In this study, the diagnosis of chancroid was made by biopsy in 45 cases, 35 of which were confirmed by culture. Biopsy yielded the correct diagnosis in all but 1 of the cases proved by culture; in that instance the Ducrey bacillus was cultured from the lesion but biopsy showed granuloma inguinale with Donovan bodies.

The histologic picture can be differentiated from that of other genital lesions on the basis of a combination of findings such as the general architecture of the lesion consisting of an ulcerated surface and 1 or 2 deeper layers, marked endothelial proliferation occurring predominantly in the mid-zone, where the endothelium in the various stages of overgrowth outnumbers all other cells. The palisading of blood vessels with degeneration of their walls in addition to dense infiltration of the deep zone by plasma cells and lymphocytes with a gradual transition into the surrounding tissues constitute other criteria of diagnosis.

Examination by biopsy is particularly useful for lesions heavily contaminated by other bacteria, and its use is recommended by the authors as a practical diagnostic tool.

AM. J. SYPH., GONOR., & VEN. DIS., ST. LOUIS

*The clinical and laboratory differentiation between chancroid and lymphogranuloma venereum. Albert Heyman. 30: 279–286, May 1946.

The clinical and laboratory differentiation between chancroid and lymphogranuloma venereum.—The author discusses the similarity in appearance of local manifestations of lymphogranuloma venereum and chancroid which makes clinical differentiation of these diseases difficult. The present article contrasts the clinical and laboratory manifestations of 2 groups of patients which comprised 160 Negroes suspected of having either chancroid or lymphogranuloma venereum.

The skin manifestations of disease were noted in detail as to size, number, location, base, exudate, edges, and friability of lesions, and buboes were described as to rapidity of development, contour, fluctuation, and location. Kahn and Wassermann tests were made along with protein determinations, formol gel reactions, and lymphogranuloma complement fixation tests. Darkfield examinations and skin tests with Ducrey vaccine and lygranum antigen were also carried out.

The diagnosis of chancroid was established in 60 patients (38 men and 22 women), the duration of the infection averaging 16 days. Twenty-five patients (19 men and 6 women) were proved to have lymphogranuloma venereum by isolation of the virus from the buboes, the infection averaging 12 days in duration. Primary lesions were present in 57 of the 60 patients with chancroid, and in 43 of these the lesions conformed to the usual descriptions of the infection. Early lesions of lymphogranuloma venereum were seen in 6 patients as solitary, inconspicuous erosions with a serous exudate and a smooth base. Clinical differentiation of the buboes of the 2 diseases is often impossible, but buboes of chancroid usually develop rapidly and appear as a solitary, unilateral, circumscribed inguinal mass, whereas the buboes of lymphogranuloma appear as a slowly developing, often bilateral, ill-defined lobulated mass in the inguinal or femoral region.

Constitutional symptoms consisting of headache, malaise, fever, and anorexia appeared in approximately one-half the patients, these symptoms being more severe in those with lymphogranuloma venereum.

The laboratory methods for the diagnosis of chancroid appeared more reliable than clinical criteria; at least from 80 to 90 percent of chancroidal infections can be diagnosed by the use of culture or biopsy. There are no simple and practical laboratory procedures for the diagnosis of lymphogranuloma venereum, however, so that diagnosis of this disease must depend upon clinical features, negative tests for chancroid, and positive skin and complement fixation tests for lymphogranuloma venereum. The study indicates that the diagnosis of lymphogranuloma venereum should not be made in individuals who give persistently negative skin and complement fixation tests for this disease.

ANN. ET BULL. DE DERMAT., PARIS

- Statistics of acute venereal diseases treated in the dispensary of the Faculty in 1945. Gougerot and Burnier. 6: 129, Mar 1946.
- Statistics of sources of infection in one of the services of Hôpital Saint-Louis in 1945. Weissenbach, Bouwens and Tourneville. 6: 129, Mar. 1946.
- Aortitis following secondary syphilis in which reversal of serologic tests to negative occurred in a normal time period and which was treated for four years. E. Lortat-Jacob. 6: 133, Mar. 1946.
- *Bismuth mania. A. Touraine. 6: 136, Mar. 1946.
- *One case of fatal encephalopathy and two cases of morbilliform erythema after fontarsol. Touraine, E. Lortat-Jacob, Couder and Vissian. 6: 136, Mar. 1946.
- Post-arsenical erythrodermia aggravated by thiazomide. F. P. Merklen, J. Sallet and R. Wattefeld. 6: 137, Mar. 1946.
- Two cases of myelitis following injection of acetylarsan. J. Gadrat. 6: 138, Mar. 1946.

Bismuth mania.—The author reports upon a female patient, aged 50 years, who had had secondary syphilis at the age of 21. At that time, she received 2 courses of neoarsphenamine and bismuth after which the Wassermann reaction of the blood became negative. Three more such courses were given. Thereafter, against the advice of several physicians and in spite of progressive elevation of the blood urea, the patient received 3 courses of bismuth annually for 28 years without interruption. Wassermann reaction of the blood was constantly negative, and lumbar punctures done at the ages of 29 years and 37 years revealed normal findings. Clinical and serologic examinations performed by the author did not indicate any pathology. Nevertheless, the patient continued to take bismuth injections because of heaviness of her legs and headache which were relieved 2 hours after injection and completely disappeared the following day. She considered life "intolerable" if she were not under the influence of bismuth.

The patient's daughter, 25 years of age, d not present any stigmas of congenital philis. All seroreactions were negative. evertheless, after having had 2 courses sulfarsphenamine, she continued the me regimen of 3 bismuth courses anually for 23 years.

One case of fatal encephalopathy and wo cases of morbilliform erythema after ontarsol.—(Fontarsol, a French prepaation, is identical with the American hlorarsen which chemically is 3-amino-4-ydroxyphenol dichloro-arsine hydrohloride.)

The case of a female patient, aged 21 ears, who had no previous disease exept a mild liver dysfunction at about 14, s reported. She had been under treatent for multiple chancroid since Oct. 15, 945, when signs of secondary syphilis beame manifest on November 20. She came or consultation on December 4. She reeived 60 mg. fontarsol on December 6, nd, thereafter, daily injections of 120 g. fontarsol for 12 successive days. here were no reactions, except a Herxeimer reaction with fever of 38.6° C. on ecember 8. On December 18, she had temperature of 38.6° C. and progresively severe headache. The following ay delirium and coma developed. She ied on December 20. Autopsy revealed arked ingestion of the cortical meninges nd fatty degeneration of the liver of ild degree.

Two male patients who were treated or primary syphilis developed morbilliorm exanthemas after total doses of .92 gm. and 0.96 gm. fontarsol, respecively. The eruptions disappeared after days and after 24 hours, respectively.

ANN. INT. MED., LANCASTER

*An analysis of complications encountered during therapeutic malaria. Hilton S. Read, Lawrence I. Kaplan and Frederic T. Becker. 24: 444–464, Mar. 1946.

The management of chronic arthritis and other rheumatic diseases among soldiers of the United States Army. Philip S. Hench and Edward W. Boland. 24: 808–825, May 1946.

*A case of lymphogranuloma venereum associated with atypical pneumonia. William H. Wood, Jr. and Henry Felson. 24: 904–908, May 1946.

An analysis of complications encountered during therapeutic malaria.—The authors analyze the complications encountered in a series of 300 patients with neurosyphilis treated with therapeutic malaria, both vivax and quartan. Some of the complications observed include the following:

Twenty-two cases of jaundice were seen in this study. Although only 63 percent of all the patients were treated with vivax malaria, 76 percent of those developing jaundice were in this group. No jaundice developing after the termination of malarial therapy was seen, although about 35 percent of the patients received 10 daily injections of mapharsen during their convalescence.

Thirteen of the 21 cases of edema observed had received vivax malarial therapy, representing an equal distribution of patients inoculated with each malarial species. Albuminuria, lasting for 2 days or longer, was discovered in 48 of the 300 patients receiving treatment (28 inoculated with vivax malaria and 20 with quartan malaria). Nineteen of these 48 cases showed varying degrees of microscopic hematuria; 8 (42 percent) of combined albuminuria and hematuria complications occurred during quartan malarial therapy. Four patients developed acute nephritis for which the malaria therapy was determined to be the direct etiologic factor.

Thirteen patients developed respiratory difficulty unaccompanied by pneumonitis, while 3 of the 300 cases studied developed clinical and roentgenographic evidence of this disease. One case of pneumonitis developed during the active febrile illness, 1 during the incubation period, and 1 during convalescence while on quinine therapy. Bronchial asthma was found to be markedly aggravated during malarial paroxysms.

The exacerbation of tabetic crises and lightning pains was observed in 6 cases, the pains being most severe during the febrile paroxysms. Mental complications were uncommon in this series, only 5 such incidents being seen. Three patients became confused and disorientated during the height of febrile reaction, one experienced hallucinations, while the other developed delusions accompanied by belligerency.

It is pointed out that while the course of repeated paroxysms in therapeutic malaria differs from that of natural malaria interrupted early in its cycle by antimalarial agents, the use of therapeutic malaria nevertheless affords opportunity for clinical study of the various manifestations of the disease.

A case of lymphogranuloma venereum associated with atypical pneumonia.—The authors present a case exhibiting pneumonitis and lymphadenopathy accompanied by laboratory evidence of lymphogranuloma venereum, in which it is believed that the combination of pathologic processes may have been due to the virus of lymphogranuloma venereum. This disease is no longer thought of as a local infection of the genitals and regional lymphatics, but as a systemic infection capable of producing headache, septic fever, chills, and involvement of lymphatics other than those of the inguinal and pelvic regions.

The patient, a 29-year-old sergeant, had been quite well except for an episode of gonococcic urethritis 1 year previously. In December 1942 he developed a cough which failed to disappear, and on January 5, 1943, he was admitted to the hospital because of malaise, cough, and chills. Pneumonitis was diagnosed and treated with sulfathiazole. On February 5, the patient became aware of a swollen lymph gland in the right axilla, followed by gradual enlargement of the lymph glands in the left inguinal region. Urinalysis, Kahn reaction, and blood culture were all negative, however. Sulfadiazine was administered for more than 4 weeks at blood levels of 5 to 7 mg. per 100 cc.

The Frei test was repeatedly positive, and the microscopic sections removed from the glands were suggestive of lymphogranuloma venereum. The patient's serum fixed complement in high dilution with the specific virus, and in much lower dilutions with the other viruses of this group. It was therefore believed that this was a case of acute lymphogranuloma venereum and that possibly the one agent was the cause of both pathologic processes.

ARCH. DERMAT. & SYPH., CHICAGO

*Poikiloderma atrophicans vasculare jacobi. Cutaneous changes typical of this disease in a patient with late meningovascular neurosyphilis. Frederick Kalz and Jan Hoogstraten. 53 : 333–341, Apr. 1946.

Poikiloderma atrophicans vasculare jacobi. Cutaneous changes typical of this disease in a patient with late meningovascular neurosyphilis.—A case of clinically typical poikiloderma atrophicans vasculare in a patient with meningovascular neurosyphilis is described.

A 45-year-old Canadian, unaware of his infection, was found to have a positive Wassermann reaction at a blood donor clinic. Examination revealed a slight ptosis of the left eyelid, slight pallor of the left disk, reduced vision of the left eye, and coldness of one hand. Bluish spots which had appeared in 1935 had gradually darkened. Knee and ankle jerks were not elicited. The spinal fluid was positive with 0.1 cc. fluid and the colloidal gold curve was of the dementia paralytica type. A diagnosis of late meningovascular neurosyphilis was made.

The skin presented large areas of light brown pigmentation. Parts of the back showed superficial atrophy (cigarette-paper-like thinning) and fine desquamation. The forearms had a mottled appearance resembling roentgen atrophy.

Antisyphilitic treatment was instituted with weekly injections of bismuth subsalicylate in oil followed by weekly injections of oxophenarsine hydrochloride. A fading of pigmented areas followed. Ten sessions in the fever cabinet, combined with injections of bismuth subsalicylate and oxophenarsine hydrochloride were subsequently given (50 hours over 105° F.). All cutaneous lesions gradually disappeared, and proper circulation was restored in the hand.

The cutaneous changes observed in this case represent a disorder of the trophic-vascular type associated with meningovascular neurosyphilis and cured either by

e specific action of antisyphilitic ther-
y on a central lesion, or by the non-
ecific effect of this therapy on the dis-
se described.

RCH. NEUROL. & PSYCHIAT., CHICAGO
*Early effects of penicillin treatment of dementia paralytica. A clinical and psychologic study. J. Edward Stern and Helen M. Campbell. 55 : 266–273, Mar. 1946.

**Early effects of penicillin treatment
dementia paralytica. A clinical and
ychologic study.**—A case is presented
dementia paralytica occurring in a man
ged 31 whose serologic reactions were
egative 15 months before the onset of
mptoms and whose treatment consisted
penicillin alone.

The patient, on September 3, 1944, after
orking in the sun for 3 hours, felt weak,
zed, and confused but did not lose con-
iousness and was admitted to the hos-
tal the following day. The neuropsychi-
ric examination disclosed that there
as slurring of test phrases, halting
eech, only fair orientation and mem-
y, and poor following of directions. The
ahn and Kolmer reactions of the blood
September 10, 1944, were positive (4
us), and on September 20 the colloidal
ld test showed a first zone curve. Di-
gnosis was finally established as demen-
a paralytica, although no history of
imary or secondary syphilis could be
icited.

On October 3, the patient fell to the
round but did not lose consciousness,
d on October 4, penicillin therapy was
stituted, 40,000 units being adminis-
red intramuscularly every 3 hours day
d night for a period of 8 days. Treat-
ent was completed on October 12. The
olmer test gave a strongly positive re-
tion on November 4, but by November
there was a distinct improvement in
e total protein value and a reversal of
e reaction for globulin without change
the serologic reactions or a definite
ange in the colloidal gold curve.

Shortly after the completion of treat-
ent, the patient showed definite clinical
nprovement. Test phrases were well
ronounced and orientation and memory
were distinctly improved, although the patient retained a preoccupied attitude. Detailed psychologic studies were carried out before and after treatment, and samples are given of the responses to the first, second, third, and fourth examinations.

Prolonged observation in cases such as the one here reported is needed before a reliable evaluation of the results of penicillin therapy of dementia paralytica treated with penicillin can be made. It is recommended that reexamination at stated intervals, especially psychologic testing, be carried out at intervals of 6 months to 1 year in order that treatment may be resumed before clinical symptoms of relapse appear.

ARCH. PATH., CHICAGO
Reticulum. William B. Dublin. 41 : 299–318, Mar. 1946.

BRASIL-MED., RIO DE JANEIRO
Ausência de neurotropismo e viscerotropismo do "Treponema pertenue" no organismo de camondongos inoculados. (Nota prévia.) [Absence of neurotropism and of viscerotropism in rats inoculated with yaws.] A. M. da Cunha and F. N. Guimarães. 59 : 411–413, Dec. 1, 1945.

BRIT. J. EXPER. PATH., LONDON
A serological investigation in hepatitis using the complement-fixation reaction. J. A. R. Miles. 27 : 25–33, Feb. 1946

BULL. DEPT. HEALTH, KENTUCKY, LOUISVILLE
Fulton County reviews syphilis clinic records. Paul A. Wright and James Sanger. 18 : 625–627, July 1946.

BULL. U. S. ARMY M. DEPT., CARLISLE BARRACKS
Operation of an Army neurosyphilis center. Hilton S. Read, Frederic T. Becker and Lawrence I. Kaplan. 6 : 66–71, July 1946.

CALIFORNIA'S HEALTH, SACRAMENTO
X-ray and blood test for domestics ordered by Los Angeles city health department. 4 : 16, July 31, 1946.

CANAD. M. A. J., TORONTO
*Chronic prostatitis associated with nonspecific urethritis. Harry G. Cooper and John T. MacLean. 54 : 136–141, Feb. 1946.
Prevention of spread of V. D. to the civilian population by veterans of World War II. V. D. Briefs. 54 : 169, Feb. 1946.

Chronic prostatitis associated with nonspecific urethritis.—The authors discuss the diagnosis and treatment of chronic urethral discharge and chronic prostatitis. In the 100 cases under consideration, 36 percent had a previous history of gonorrhea while an additional 50 percent had a history of previous urethral discharge classified as nonspecific urethritis. The remaining 14 percent had no evidence of previous urethritis. In the third group, only 21 percent had a urethral discharge as the presenting symptom, as against 71 percent of the first group. The average age of patients in this study was 26.5 years.

A total of 2,100,000 units of penicillin was given each patient. On admission, cultures for gonorrhea and other organisms were taken from either the urethral discharge or prostatic fluid. Biweekly examinations of the discharge or prostatic fluid were made and a pus-cell count made. It was found that symptomatic improvement was first noted on the fifth to tenth day of treatment, usually on the seventh day. "Cure" was defined as a state in which (1) the patient was entirely asymptomatic, (2) the 3-glass urinalysis was normal, (3) the prostatic fluid on culture was negative for gonococci, (4) the number of pus cells in the prostatic fluid was reduced to below 5 per high power field, and (5) reexamination in 3 months' time confirmed these findings.

All 100 patients were asymptomatic at the time of discharge from the hospital. Seventy-five percent of them were "apparently cured" (the number of pus cells in the prostatic fluid was below 5 per high power field), and the remaining 25 percent were "improved" (the number of pus cells in the prostatic fluid was above 5, but below 20, per high power field). There were 6 temporary failures or complications requiring additional special treatment, such as circumcision, meatotomy, or urethral dilatation.

Health Bull., Virginia Dept. of Health, Richmond

The venereal disease problem. 10 : 3, July 1946.

Hospital, Rio de Janeiro

Contribução au estudo da lesão primaria da bouba. Nota prévia. [The primary lesio in yaws.] C. F. Lopes. Pp. 987–997 Dec. 1945.

Indian M. Gaz., Calcutta

A case of inguinal granuloma (granulom inguinale tropicum) in Bengal. L. M Ghosh and D. Panja. 81 : 84, Feb. 1946

A case of lymphopathia venereum (lympho granuloma venereum) in Bengal. L. M Ghosh and D. Panja. 81 : 137–138, Ma 1946.

J. A. M. A., Chicago

Official statement on penicillin in syphilis Current Comment. 134 : 34, May 4 1946.

Fate of beeswax in penicillin mixtures Queries and Minor Notes. 131 : 710 June 22, 1946.

J. Am. Pharm. A. (Prac. Pharm. Ed.) Baltimore

Penicillin problems. Editorial. 7 : 288 July 1946.

J. Bact., Baltimore

Some observations in the study of false positive Kahn reactions. Joseph A. Kasper 51 : 265, Feb. 1946.

Gonococcus cultures: comparison of result with mailed slants and immediate plates Grace Eldering and Evelyn Palser. 51 266, Feb. 1946.

J. de Méd. de Lyon, Lyon

Diagnostic value of the blood sedimentation test in aortic syphilis. M. J. Barbier. 621 : 737–742, Nov. 20, 1945.

J. M. A. Georgia, Atlanta

The treatment of syphilis with penicillin Albert Heyman. 35 : 206–208, Jul 1946.

J. Missouri M. A., St. Louis

Reinfection with syphilis. Charles C. Dennie and Lennert B. Mellott. 43 : 450-451, July 1946.

J. Nat. M. A., New York

Penicillin recommended for prospectiv mothers. John T. Givens. 38 : 139, Jul 1946.

J. Social Hyg., New York

Wartime lessons in united action for community welfare. Mary E. Switzer. 32 192–198, Apr. 1946.

*A psychological approach to social hygien for women. Margaret D. Craighill. 32 199–201, Apr. 1946.

Is commercialized prostitution returning An analysis of a series of 2,373 studie made by the American Social Hygien Association, January 1, 1940 to March 31 1946, in 1,170 communities near many o

which members of the Armed Forces are still stationed. 32: 225–226, May 1946.
rogress in Federal legislation. Editorial. 32: 227, May 1946.
he May act is made permanent. 32: 228–229, May 1946.
enate committee on education and labor reports favorably on S. 1779 (Social Protection bill). 32: 230–232, May 1946.

**psychological approach to social hy-
ne for women.**—The author deals with
Army programs for men and women
elation to social hygiene. While both
grams were based on education, that
the men stressed prophylaxis, whereas
t for the women neither taught nor
vided this feature, the emphasis being
her on health education in general,
h sex education as merely one phase.
roblems in the field of social hygiene
related to military women have been
y few, however. The incidence of ven-
al diseases, abortions, and illegitimate
gnancies was very small, both in this
intry and abroad. Group disapproval
misconduct was said to be the strongest
erring factor, although balanced
inst this was loneliness and the inade-
acy of recreational facilities overseas,
addition to the strong social pressure
women because of their scarcity.

he problem of social hygiene for
men in the future should be approached
increased education and the develop-
nt of a sound philosophy. On the edu-
ional side, there is a need for better
ndamental biologic training beginning
an early age; next should come sex
ucation with proper emphasis on psy-
ology. In the development of a sound
ilosophy, positive attitudes should be
sed on the replacement of fear and so-
l stigma by understanding and reason.
is can be accomplished in 2 ways: (1)
making available accurate sex informa-
n which includes a knowledge of the
sis of sex restrictions, such as respon-
bility for paternity and security for
men; and (2) by recognizing the
ength of the fundamental sex urge and
e basis of the double standard—physio-
gic processes, from which the masculine
int of view is derived; and fear, upon
ich the feminine point of view is based. Emphasis must be placed on individual responsibility for social order, and the sex instinct must be guided into constructive channels if the goal of social maturity is to be attained.

KENTUCKY M. J., BOWLING GREEN

Rheumatic fever: A clinical survey of 542 cases, with reference to unusual precipitating factors, case reports. William H. Rosenblatt. 44: 222–228. July 1946.

LANCET, LONDON

*One-shot treatment of acute gonorrhoea with penicillin. Review of 617 male cases. T. R. Lloyd Jones, E. M. Donaldson and S. J. Allen. 1: 526–529, Apr. 13, 1946.

One-shot treatment of acute gonorrhoea with penicillin. Review of 617 male cases.—The authors describe a new vehicle for prolonging the action of penicillin, consisting of magnesium sulfate monohydrate in peanut oil.

The ideal treatment for gonorrhea is said to be one which can be completed with a single injection, entailing no toxic effects, and bringing about early cure in at least 90 percent of uncomplicated cases. It should not, moreover, produce penicillin-fastness of the gonococcus or mask a concomitantly developing syphilis. It appears that most patients will be cured whose blood-penicillin is maintained either at a relatively constant high level for 9 hours, or at a lower fluctuating level for 24 hours.

Patients were treated with single injections of sodium penicillin in 50,000–1,000,000 units, but at none of the levels attained by this method was a 90 percent cure rate obtained. Suspensions of penicillin in pectin, ol. arachis B. P. (peanut oil), and ol. arachis with 5 percent "Lanette Wax" failed to maintain satisfactory blood levels for 8 hours, while suspensions containing 500,000 units of penicillin and 60 percent adeps lanae (by weight) in 1 and 2 cc. of ol. arachis proved more satisfactory, but their high viscosity rendered them unsuitable for routine use.

Further experiments were made with magnesium sulfate, selected because of its availability, nontoxic effects, and hygroscopic qualities; ol. arachis was retained as the vehicle. It was decided that

200,000–300,000 units of penicillin in a volume of 1 cc. should constitute the standard dose, and it was found that 5 gm. of magnesium sulfate monohydrate was the maximal amount which, mixed with 3,000,000 units of sodium penicillin and suspended in 10 cc. of ol. arachis, made a preparation which could be drawn into a syringe. The amount of magnesium sulfate was then reduced to form a substance fluid at room temperature which could be injected through a needle. The authors give detailed instructions for the preparation of magnesium-sulfate suspensions—materials to be used, procedure, and storage qualities.

During the investigation, every patient with gonorrhea was treated with 1 of the 4 single-injection methods described. Most of the cases were uncomplicated; others had been treated unsuccessfully with sulfonamides or penicillin; a few presented prostatitis, epididymitis, tysonitis, and littritis. Gonococci were demonstrated in gram-stained smears obtained before treatment was instituted, and a clinical examination and Wassermann reaction were made in a search for syphilis. No systemic upsets were noted with any of the preparations used, but local reactions developed at the site of injection in about half the patients treated with magnesium sulfate suspensions. As a rule, gonococci disappeared from smears of the urethral exudate within 4 to 5 hours, by which time the majority of urethral discharges, originally purulent, had become less profuse and mucopurulent or mucoid. All cases examined showed negative smears after treatment. Relapse, in which gonococci were demonstrable in smears or cultures after their initial disappearance, occurred almost invariably within 7 days after treatment. Of 371 cases under observation for over 4 weeks, only 1 showed late relapse, and none gave positive smears or cultures in the absence of clinical signs.

M. Ann. District of Columbia, Washington

The absorption, distribution and excretion of penicillin. Harold L. Hirsh. 15: 315–319, 358, July 1946.

Can we "control" venereal disease? I
torial. Ray H. Everett. 15: 334–3
July 1946.

M. J. Australia, Sydney

*Non-gonococcal urethritis in Austral
troops stationed in Borneo. Step
Williams. 1: 693–695, May 18, 194

*Chronic vesiculitis as a factor in the p
duction of non-gonococcal urethral
charges. Charles E. Marshall. 1: 8
848. June 15, 1946.

Genito-urinary disorders occurring in Sin
pore prisoner-of-war camp, with spe
reference to polyuria and nonspecific
flammations. H. A. Phillips. 2: 1
113, July 27, 1946.

**Non-gonococcal urethritis in Austr
ian troops stationed in Borneo.**—Nons
cific urethritis has become a well-rec
nized clinical entity in military hospita
although there is still no clear eviden
as to its etiology. The disease in A
tralia appears to have a wide distributi
in every State. The author believes it
also widespread in Borneo and possib
throughout the East Indies.

**Chronic vesiculitis as a factor in t
production of non-gonococcal ureth
discharges.**—The author states that
Australia it would appear that nearly
cases of nonspecific urethral dischar
can be attributed to one or more of t
following agencies: (1) filtrable viruse
pleuropneumonia-like organisms; (
secondary infection by a nonpathogen f
lowing chemical or mechanical insul
(3) chronic vesiculitis and prostatitis.

Four groups of soldiers were select
for examination from those admitted
a special hospital. The results of t
examinations are described, and th
illustrate the high incidence of chron
vesiculitis in cases of nongonococc
urethritis. Chronic vesiculitis as a cau
of protracted urethral discharge is e
phasized.

In conclusion, the author discuss
briefly the diagnosis and treatment
chronic vesiculitis.

M. Officer, London

The health of the nation in 1944. 75: 1
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Feb. 9, 1946.

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Health. 75: 55, Feb. 9, 1946.

ecrecy at V. D. clinics. Notes of the Week. 75 : 156, Apr. 20, 1946.

ocial medicine in a Middle East base. Michael Critchley. 75 : 173–176, May 4, 1946.

remarital serological tests. Notes of the Week. 75 : 245, June 22, 1946.

yphilis in Connecticut. Notes and Comments. 76 : 15, July 13, 1946.

onorrhea. Notes and Comments. 76 : 27, July 20, 1946.

phthalmia neonatorum. Arnold Sorsby. 76 : 49–50, Aug. 3, 1946.

nported v. d. Notes of the Week. 76 : 77, Aug. 17, 1946.

icrease in v. d. cases. Notes of the Week. 76 : 77, Aug. 17, 1946.

. SURGEON, WASHINGTON

'hy is neurosyphilis uncommon in the tropics? James L. McCartney. 99 : 21–22, July 1946.

'A SCOTIA M. BULL., HALIFAX

regnancy in general paresis. Case report. E. Pearl Hopgood. 25 : 235–236, July 1946.

c., 2ND FEDERAL-PROVINCIAL CONF., V. D. CONTROL DIRECTORS, OTTAWA

The proceedings of the second Federal-Provincial conference of venereal disease control directors. Apr. 29–30, 1946.

he proceedings of the second Federal-
vincial conference of venereal dis-
e control directors.—This publication
sents the first quarterly statistical re-
t on the incidence of venereal disease
Canada. Prior to 1944, no statistics
e collected on this incidence for Can-
as a whole, each province having a
erent notification form and using dif-
nt nomenclatures. In some Prov-
s notification of venereal diseases did
become compulsory until 1941. At
National Venereal Disease Confer-
e held in Ottawa in December 1943,
ever, a uniform system of notifica-
was devised, and since September
1 all Provinces have been submit-
a weekly report on the incidence of
ereal diseases to the Dominion Bu-
u of Statistics.

he total number of venereal disease
ctions reported in Canada in 1945 was
27 as compared with 38,772 for 1944,
increase of 4.5 percent. The number of
hilis infections in 1945 was 15,278 as
pared with 16,475 in 1944, a decrease
.2 percent, while the number of gonor-
a cases was 25,237 in 1945 and 22,282
944, an increase of 13.2 percent.

The rate of syphilis, all types, for Canada as a whole was 126 per 100,000 per annum in 1945. In 1944 it was 137 per 100,000, a decrease of 8 percent for 1945. The rate of gonorrhea for Canada as a whole was 208 per 100,000 per annum in 1945 as compared with a rate of 186 per 100,000 per annum in 1944, an increase of 11 percent. The gonorrhea rate for 1945 showed a decrease for Nova Scotia but an increase for all other Provinces.

The ratio of gonorrhea to total syphilis was 1.7 to 1 for 1945 as compared with the ratio of 1.4 to 1 for 1944. It is pointed out, however, that it is not possible to determine whether increases in venereal disease rates in this report are due to better reporting by physicians, to an actual increase in incidence, or to both factors. Better reporting of gonorrhea especially is strongly urged.

Resolutions adopted at this conference include better cooperation between various divisions engaged in venereal disease control, increase of venereal disease control training in the universities having public health curriculums, the use of a quantitative complement fixation test on all positive cerebrospinal fluids, subjection of serum specimens proved positive to the standard flocculation test to a titrated flocculation serologic test for syphilis, and the employment only of laboratories approved by the Director of Provincial Laboratories. It is also recommended that discharged syphilitic veterans be given free choice of physician or clinic among the facilities available according to existing agreements between the Department of Veterans' Affairs and Provincial health authority and that such treatment for veterans be administered to finality.

PSYCHOANALYT. REV., NEW YORK

*A psychoanalytic interpretation of the mental symptoms of paresis. Isador H. Coriat. 32 : 253–262, July 1945.

A psychoanalytic interpretation of the mental symptoms of paresis.—The author notes that within the last decade a new era in psychiatry has been developing, in which the purely statistical attitude and the mere classification of psychoses have been replaced by a more dynamic approach. It is being realized that mental symptoms are not due to chance but are the result of deeply seated ego defensive mechanisms and id inroads, and can be interpreted in somewhat the same manner that the psychoneuroses have been reconstructed.

The psychic disorders of general paresis are discussed in detail. This disease is an organic psychosis with widely spread parenchymatous changes in the brain, such as plasma cell infiltrations of small vessels and iron deposits in intra-adventitial spaces. While neuropathologists claim that the localization of the paretic degenerative and inflammatory processes cannot be correlated with the varying clinical pictures, it is true that cases with pronounced dementia generally show the most widely spread devastation. In juvenile paresis there is a progressive regression of both ego development and libido distribution, showing clinically as a simple deterioration process, due perhaps to the immaturely developed ego-ideal. Ferenczi holds the paretic psychosis to be built up out of symptoms which can be traced to libido discharge and to a pathoneurotic narcissistic intensification of the libido, provoked by organic lesions.

Three case histories of paresis are given and their manifestations discussed. In paresis it is stated that the ego ideal is lost through the organic brain disease and the narcissistic ego becomes predominant, the patient regressing mentally to that period of life when this narcissistic ego was the entire ego, or childhood. Changes in the cortical structure seem to be interrelated with mental symptoms, leading on the one hand to psychic disturbances in the higher processes of thinking, and, on the other, to the reversal of total behavior to that of a helpless child.

REV. SIFIL., LEPROL., Y DERMAT., MARIANAO, CUBA

Un caso con manifestaciones cutáneas temprana de pinta. [A case of pinta with early cutaneous manifestations.] A. Oteiza and F. Leon Blanco. 2 : 199–205, Dec. 1945.

La frambesia en Bayamo. (Frambuesa, pian, yaws o bubas.) [Yaws in Baya (Cuba).] R. Ibarra Perez and M. Gonzalez Prendes. 2 : 206–218, Dec. 19

Sinonimia y distribución geográfica de pinta, mal del pinto o carate. [Synony and geographical distribution of pint F. Leon y Blanco and Elvira Sanchez G cia. 2 : 233–243, Dec. 1945.

SCHWEIZ. MED. WCHNSCHR., BASEL

*Epididymitis and trauma. G. Miesc and C. Böhm. 76 : 520, June 8, 1946.

Epididymitis and trauma.—Intraves ular infection of guinea pigs with Bacil coli always caused severe cystitis wh highly pathogenic strains were us Cystitis was produced occasionally a only in a chemically irritated bladd when less pathogenic strains were us In both instances, after 1 or 2 wee epididymitis developed more or less f quently, and it occurred almost constan after previous injury of the lower pole the testicle.

Subcutaneous, oral, intrastomachic and epiconjunctival infection with B. c caused coli-bacteriuria, even by digest of bacilli with the food. However, cys tis developed only after chemical irri tion of the bladder. If the epididy was simultaneously traumatized, epidid mitis developed on the injured side. coli was found in pus obtained by pu ture) ; it did not develop on the n traumatized side.

Intravesicular, intratesticular, and e conjunctival infection with a suspensi of a freshly made gonococcus culture p duced gonococcus-bacteriuria in all a mals. In some of them it was demo strable after 9 months. However, t bacteriuria did not cause pathologic pr esses in any organ, not even in an injur testicle.

SOUTH AFRICAN M. J., CAPE TOWN

Health centre practice, promotive hea services and the development of hea centres scheme. G. W. Gale. 20 : 32 330, June 22, 1946.

VIRGINIA M. MONTHLY, RICHMOND

Some precautions in the administration sulfa drugs. H. H. Howze. 73 : 356–3 Aug. 1946.

The importance of cerebrospinal fluid exa ination in syphilis. Lewis W. McIlha and J. N. Dudley. 73 : 360–361, A 1946.

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FEDERAL SECURITY AGENCY

UNITED STATES PUBLIC HEALTH SERVICE

THOMAS PARRAN, *Surgeon General*

Editor: J. R. HELLER, Jr., *Medical Director*
Chief, Venereal Disease Division

Approved by the Director, Bureau of the Budget, as required by Rule 42, of the Joint Committee

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Studies in Syphilis VII. The End Results of Untreated Syphilis

Paul D. Rosahn, M. D.

The material on which this series of reports is based consists of 3,907 autopsies on persons 20 or more years of age performed at the Yale University School of Medicine between 1917 and 1941. Among these were found 380 presenting clinical, laboratory, or postmortem evidence of syphilis.

The 380 patients with syphilitic disease who were studied at autopsy and who form the basis for this series of reports received variable amounts of antisyphilitic therapy. Some were well treated by modern standards, others received minimal amounts of treatment, and the third group was untreated. A study of this latter group has presented the opportunity to determine the distribution of morphologic lesions of syphilis in an untreated syphilitic population. This report will present these findings. In only two other series, those of Bruusgaard (*1*) and of the United States Public Health Service (*4*, *5*, *6*), has there been any attempt to evaluate the clinical and postmortem evidence of syphilis in patients who received no specific therapy for their disease. The work of these investigators is noteworthy and warrants further comment.

In 1929 Bruusgaard published a classical report on the fate of syphilitic patients who had received no specific therapy. This study was made on the basis of material which, to quote Bruusgaard's words, "is hardly to be duplicated anywhere else." During the period 1889 to 1910, neither potassium iodide nor mercury was employed at C. Boeck's clinic at the University of Oslo in the treatment of early syphilis. Boeck believed that these drugs do not cure the disease but disturb the healing forces of the body; consequently, the disease becomes atypical and results in serious late lesions, especially of the central nervous system. In the period mentioned, 2,181 patients with primary and secondary syphilis were seen, of whom 1,388 were women and 793 were men. Potassium iodide was occasionally given but never in higher quantities than 100 to 200 grains, and mercury ointments were employed in very few cases. For all practical purposes the group was untreated.

Bruusgaard began his personal interviews of these patients in 1924 and completed them in 1927, including in his study only those patients originally seen from 1891 to 1910. He was able to trace 309 living patients from this group, and these were thoroughly examined clinically. All received a complete neurologic examination and X–ray studies of the heart. In certain instances a spinal fluid examination was performed and almost all patients had a blood Wassermann study. Information about paretics and tabetics was obtained from hospitals and asylums. To this group of 309 living patients there were added 164 patients who had died of known cause, and 40 on whom autopsies had been performed. The findings he presented in a series of tables which have been summarized by Moore (*2*) and by Sowder (*3*), and are presented in somewhat different form in tables 1 and 2. Any discrepancy between the data as presented in these tables and as published by the above-mentioned authors arises from differing classifications of Bruusgaard's published findings. These discrepancies are not serious, however, and do not alter the general conclusions. As indicated in table 2, only

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From the Department of Pathology, Yale University School of Medicine, New Haven, Conn., and the Laboratories of the New Britain General Hospital, New Britain, Conn.

Aided by a grant from the Venereal Disease Division of the U. S. Public Health Service.

23 percent of the entire group presented clinical or autopsy evidence of involvement of the central nervous system, the cardiovascular system, or died of syphilitic disease. An additional 12.2 percent showed the less serious syphilitic tissue changes in skin or bone. The remaining group, comprising 64.8 percent of the total, either died with no clinical or autopsy evidence of syphilis or were living from 3 to 40 years after infection with no clinial evidence of the disease. Moreover, 27.9 percent had a negative serologic test and were presumably cured.

Table 1.—*Duration of syphilitic infection in 473 living and dead patients according to Bruusgaard*

Status of patient at last examination	Duration of infection in years								Total	
	3–10		10–20		20–30		30–40			
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*
Living	79	25.6	66	21.3	100	32.4	64	20.7	309	100.
Dead	13	7.9	58	35.4	63	38.4	30	18.3	164	100.
Total	92	19.4	124	26.2	163	34.5	94	19.9	473	100.

Table 2.—*Final diagnosis in 473 living and dead syphilitic patients according to Bruusgaard*

Final diagnosis	Living patients	Dead patients	Total	
			Number	Percent
Syphilis of central nervous system	[1] 31	6	[1] 37	7.8
Syphilis of cardiovascular system	[1] 21	48	[1] 69	14.
Syphilis of skin and bone	58		58	12.2
Other syphilitic disease		3	3	.
No evidence of syphilis, STS+	68		68	14.
No evidence of syphilis, STS−	132		132	27.9
Cancer		29	29	6.
Tuberculosis		29	29	6.
Other disease		49	49	10.3
Total	[1] 310	164	[1] 474	100.

[1] 1 duplication.

However, these ratios tend to exaggerate the serious nature of the disease. Sowder (*3*), analyzing Bruusgaard's material by several criteria of sampling, demonstrated that it was weighted with cases showing the serious complications of syphilis and contained too few patients who were symptom-free. Moreover, in the summarized tables presented herewith, many cases are included as syphilitic even though the original data leave some doubt as to the syphilitic etiology of their disease. As an example of this type of weighting, cases showing "paralysis of the heart," "fatty heart," "arteriosclerosis," "organic heart lesion," and "cerebral apoplexy" are classified in this table as instances of cardiovascular syphilis, while cases of "epilepsy" and "psychosis" are included as central nervous system syphilis. Bruusgaard's observations, the only long-term study of the end results of untreated syphilis, appear to indicate that in terms of both morbidity and mortality syphilis is not the dread disease it is commonly believed to be.

One other study (*4, 5, 6*) under the auspices of the United States Public Health Service promises to be the most illuminating investigation of its type yet undertaken. The material, culled from 1,782 male Negroes aged 25 or more who were serologically examined in Alabama, included 399 syphilitic Negro males who had never received treatment and 201 presumably nonsyphilitic Negro males. The untreated group all gave a history of infection and each had at least two positive serologic tests for syphilis. The first paper (*4*) presents a comparison between the morbidity rate in the untreated syphilitic patients and that observed in the nonsyphilitic Negroes. In the first group there were 23.6 percent with evidence of uncomplicated aortitis, as compared with 5.0 percent in the nonsyphilitic group. Also 26.1 percent of the untreated syphilitic Negroes had either clinical or serologic evidence of central nervous system involvement, while only 2.5 percent of the nonsyphilitic group had any disease of this system. Finally, 11.5 percent of the untreated patients with syphilis presented evidence of late involvement of the bones, joints, and skin. Information as to the duration of the disease in these patients at the time of their inclusion in the study is not given, but good evidence is presented to warrant the conclusion that morbidity in the untreated male Negroes with syphilis far exceeded that in a comparable presumably nonsyphilitic group.

These studies were extended in a later communication (*5*) dealing with the effect of the disease on the life span of the human host. The material on which this report was based was expanded to include 410 Negro men with untreated syphilis, in addition to the previously described group of 201 uninfected Negro men. Careful follow-up information regarding these individuals was obtained since their original selection in the winters of 1931–32 and 1932–33, and it was felt that not one individual still living had been completely lost from observation. Through the end of 1944, 129 were known to have died, and 93 of these were examined post mortem. The study as reported was limited to the 12-year period between January 1, 1933, and December 31, 1944. Of the original group of 410 syphilitics, 101 (24.6 percent) had died, as contrasted with only 28 (13.9 percent) of the 201 controls. Life tables for the two groups were constructed, and it was concluded that the life expectancy of the Negro man of age 25 to 50, infected with syphilis but untreated, was reduced on the average by about 20 percent. This investigation is still in progress, and subsequent publications dealing with the life cycle of the untreated disease, supplemented by the detailed postmortem examinations that were conducted, will without doubt comprise an outstanding contribution to the literature, equaling if not exceeding in importance the work of Bruusgaard.

These two studies employ different technics in their approach to the identical problem. Bruusgaard conducted clinical examinations on living patients, and surveyed the death records of deceased patients, all of whom at variable periods before had been classified as having early syphilis and none of whom had received modern antisyphilitic therapy. The United States Public Health Service group is conducting continuing clinical studies, including autopsy investigations, on a carefully selected group of untreated early syphilis patients, information on whom can be expected to cumulate with the passage of time.

The present report utilizes a third technic heretofore not employed. All cases with historical, laboratory, or morphologic evidence of syphilis were selected from a large autopsy series, which has been described in earlier reports (*7*, *8*). The clinical record of each of these patients was reviewed and classified according to the kinds and amounts of therapy. The resulting group of untreated syphilitic patients for whom no evidence of therapy could be found is described in the present communication. This then is a retrospective study, and similar in this regard to the work of Bruusgaard. However, since the group was culled originally from an autopsy population, each individual in it was studied by postmortem examination.

MATERIAL

The 380 patients with syphilis who constitute the basic material of this series of reports are classified in table 3 according to their treatment status. Of this entire group, 198 patients received no treatment for their disease with the following 11 exceptions: 4 received 2 bismuth injections, 3 received 3 bismuth injections, 2 received 4 bismuth injections, 1 received 5 bismuth injections, and 1 received mercury inunctions and potassium iodide by mouth for 6 weeks. All these patients were considered to have been untreated and are so classified in the subsequent analysis. There were 129 males and 69 females in this group of untreated syphilitic patients. The large majority (150) were white and the remaining 48 were Negroes. At autopsy, the central nervous system of 116 (58.6 percent) was examined.

It is evident from table 3 that in the period under review from 1917 to 1941 a majority of patients with syphilis who died and were autopsied at the New Haven Hospital received no treatment for their disease. Of those whose treatment status was known, about three-quarters never were treated, while only from 3 to 4 percent of the entire group received adequate amounts of therapy according to accepted standards prior to the introduction of rapid treatment methods or of penicillin.

TABLE 3.—*Treatment status of 380 syphilitic patients*

Treatment	Cases		Cases		Cases	
	Number	Percent	Number	Percent	Number	Percent
Untreated	198	70. 2	198	66. 2	198	52. 1
Inadequately treated [1]	72	25. 5	72	24. 1	72	18. 9
Adequately treated [2]	12	4. 3	12	4. 0	12	3. 2
Total	282	100. 0				
Treated but type and amount not known	17		17	5. 7	17	4. 5
Total			299	100. 0		
Unknown	81		81		81	21. 3
Total					380	100. 0

[1] Less than 20 arsenical and 20 heavy metal injections.
[2] 20 or more arsenical and heavy metal injections.

The duration of infection could be determined from the hospital records in only 37 of the 198 cases. Of these, 18 were known to have been infected for from 1 to 20 years, and 19 for from 21 to 30 or more years. Because of the relatively scant information available on this aspect of the study, it is not possible to ascertain whether the time when infection occurred was in any way related to the absence of treatment. In table 4 is shown the year of death and autopsy of the 198 patients. A large majority, 71.2 percent of the total, were autopsied in 1927 or later, that is, 17 or more years after the discovery of arsphenamine. Thus a considerable but unknown number of the group probably acquired infections in the post-arsphenamine period.

TABLE 4.—*Year of death and autopsy of 198 untreated syphilitic patients*

Year	Patients	
	Number	Percent
1917–21	29	14. 7
1922–26	28	14. 1
1927–31	43	21. 7
1932–36	53	26. 8
1937–41	45	22. 7
Total	198	100. 0

In table 5 are recorded the criteria for e diagnosis of syphilis in the 198 un- eated patients. Comparable values for e basic group of 380 patients also are own. This classification is roughly ar- nged in decreasing order of clinical rtainty of diagnosis. By positive an- nesis is meant a history of infection, a history of treatment of an infection, a known previously positive serologic st for syphilis (STS) at some other inic. In the final category of the table are placed a small number of patients never clinically diagnosed as syphilitic but included because of the presence of specific anatomic changes at autopsy. The first three classes encompass 85 percent of the total untreated group, the diagnosis of syphilis in these patients having been based on historical evidence of infection together with a positive STS or spinal fluid or significant lesions at autopsy.

Table 5.—*Criteria for diagnosis of syphilis in 198 untreated patients*

Description	Total cases		Untreated cases		Treated cases	
	Number	Percent	Number	Percent	Number	Percent
Positive anamnesis, positive STS or spinal fluid on last admission	213	56.1	127	64.1	86	47.3
Positive anamnesis, positive STS on previous admission	43	11.3	10	5.1	33	18.1
Positive anamnesis, no serologic or clinical evidence of syphilis on last admission but confirmation at autopsy by positive STS or presence of anatomic lesions	57	15.0	31	15.7	26	14.3
Positive anamnesis but doubtful STS on last admission	3	.8	1	.5	2	1.1
Positive anamnesis but no STS on last admission	15	3.9	5	2.5	10	5.5
Positive anamnesis but negative STS on last admission	38	10.0	23	11.6	15	8.2
Negative anamnesis, no STS on last admission, but anatomic lesions present at autopsy	11	2.9	1	.5	10	5.5
Total	380	100.0	198	100.0	182	100.0

RESULTS

Table 6 summarizes the final status of he 198 untreated cases. Only 77 (38.9 ercent) of this number presented any natomic changes at autopsy consistent vith a diagnosis of syphilis. In not all f these patients, however, was syphilis he primary cause of death. In less than alf of those (31 patients or 15.7 percent f the total) showing syphilitic lesions at utopsy, death occurred primarily as a esult of some other disease. The majority of the 198 patients (121 or 61.1 percent) presented no evidence at autopsy of tissue alterations suggestive of syphilitic disease. In 80 of these, or 40.4 percent of the entire group, the serologic test for syphilis during the last hospital admission was positive, and 35 patients, or 17.7 percent of the total, had a negative STS on their last admission to the hospital. A final group of 6 patients with no anatomic evidence of syphilis had a doubtful or unknown STS.

Table 6.—*End results in 198 untreated syphilitic patients*

End result	Number	Percent
Anatomic lesions present	77	38.9
Primary cause of death	46	23.2
Subsidiary finding	31	15.7
Anatomic lesions absent	121	61.1
STS positive	80	40.4
STS negative	35	17.7
STS doubtful or not known	6	3.0
Total	198	100.0

The anatomic lesions encountered at autopsy in the 77 patients with anatomic changes are tabulated in table 7. Of the 46 patients whose deaths were directly the result of syphilitic changes, 27 presented only one of the diagnostic categories listed in the table, 13 had two of these organic changes, and 6 had three, with a total of 71 different recognizable syphilitic lesions. Of the 31 patients w died of some other disease process b who had syphilitic lesions unrelated the primary cause of death, 27 showed single specific lesion and 4 presented e dence of two different lesions. None this group had three of the chang shown in table 7.

TABLE 7.—*Anatomic findings in 77 patients with untreated syphilis among who 106 lesions were found at autopsy*

Type of lesion	Number of lesions found—			
	In 46 patients dying primarily of syphilis	In 31 patients with syphilitic changes a subsidiary finding	In all 77 patients	
			Number	Percent
Cardiovascular:				
Aortitis with or without valvulitis	26	29	55	
Aneurysm of arch	8	1	9	
Aneurysm of abdominal aorta	1	2	3	
Coronary arteritis	4	0	4	
Aortitis of leg vessels	3	0	3	
Cerebral arteritis	2	0	2	
Ruptured aneurysm of arch	9	0	9	
Ruptured aneurysm of innominate artery	1	0	1	
Ruptured cerebral aneurysm	2	0	2	
All cardiovascular	56	32	88	83
Central nervous system:				
Tabes	2	1	3	
Meningitis	2	0	2	
Cerebral neurosyphilis	2	0	2	
Optic atrophy	0	1	1	
Total C. N. S	6	2	8	7
Other types:				
Gumma of brain	1	0	1	
Gumma of heart	1	0	1	
Gumma of liver	3	0	3	
Gumma of testis	0	1	1	
Gumma of meninges	3	0	3	
Cirrhosis of liver	1	0	1	
Total other types	9	1	10	9
Grand total	71	35	106	100

DISCUSSION

A comparison of the Yale material with that reported by Bruusgaard shows a remarkable similarity between the two (table 8). About 39 percent of our group of untreated syphilitic patients were found at autopsy to have anatomic evidence of syphilis, as contrasted with Bruusgaard's finding of 35 percent with clinical or postmortem organic lesions of syphilis. In the Yale series, 23 percent died primarily as a result of syphilitic disease, while Bruusgaard's populatio included an identical ratio, 23 perce with one or another of the serious en results of syphilis. Conversely, in th Yale series, 61 percent died with no an atomic evidence of syphilis, while Bruu gaard's group included 65 percent wh were living or who had died without an indication of organic syphilis. The rati of positive and negative serologic result in the two groups is somewhat differen but this perhaps may be accounted for b two factors: (1) the large group i Bruusgaard's series whose STS was no

ABLE 8.—*Summated comparison of end results of untreated syphilis in Bruusgaard's and the Yale series*

	Bruusgaard		Yale	
	Number	Percent	Number	Percent
ganic syphilitic disease	166	35.1	77	38.9
) evidence of syphilis, STS+	68	14.4	80	40.4
) evidence of syphilis, STS−	132	27.9	35	17.7
) evidence of syphilis, STS not known	107	22.6	6	3.0
Total	473	100.0	198	100.0

nown and (2) the differences which no oubt existed in the sensitivity of the erologic tests employed in the two series.

From table 7 it is seen that only about percent of the Yale group presented any vidence of syphilitic disease of the cenral nervous system. A postmortem exmination of the central nervous system s not a routine procedure in our laboraory. If it were, perhaps a larger numer of patients with central nervous sysem involvement might have been found, and this in turn would have increased the proportion of poor end results. This possibility cannot, of course, be dismissed lightly. However, there are two factors that should be considered. In the first place, it has been a practice to make special efforts to obtain permission for an examination of the central nervous system whenever clinical signs suggest involvement of this system. Furthermore, as shown in table 9, of 116 patients whose autopsy examination included a study of the central nervous system, 47 (40.5 percent) had anatomic evidence of syphilitic disease. This value does not differ significantly from 36.6 percent of the 82 patients who did not have postmortem examinations of the central nervous system but who did show anatomic lesions of other organs. The two groups show no evidence of heterogeneity with respect to the presence or absence of anatomic lesions, and this suggests that the failure to examine the central nervous system in all cases may not have influenced the results materially.

TABLE 9.—*Presence or absence of anatomic lesions of syphilis in patients with and without postmortem examination of central nervous system*

	C. N. S. examined		C. N. S. not examined		Total	
	Number	Percent	Number	Percent	Number	Percent
Anatomic lesions present	47	40.5	30	36.6	77	38.9
Anatomic lesions absent	69	59.5	52	63.4	121	61.1
Total	116	100.0	82	100.0	198	100.0

Sowder has shown that Bruusgaard's data are weighted to emphasize the more serious complications of the disease. The Yale material may be subject to the opposite criticism that, particularly as regards central nervous system syphilis, it is weighted in favor of the less serious end results of syphilis. The New Haven Hospital, a general hospital for acute diseases, does not make a practice of admitting the deteriorated patient with central nervous system syphilis. These patients ultimately reach the various State hospitals, and to this extent our material is biased. We have no method of evaluating the influence of this sampling error on our end results, but the general agreement between our findings and those of Bruusgaard suggests that it is not excessive.

If it is assumed that our findings represent a fairly accurate summary of the end results of untreated syphilis, it can be concluded that had treatment been administered adequately and early to the entire group it could not possibly have effectively altered the course of the disease in more than 4 out of 10 patients, since 6 out of 10 untreated patients died with no evidence of syphilis at autopsy. On closer inspection, even this ratio of 4 out of 10 patients who could have benefited by treatment is excessive, because only a little more than 2 out of 10 actually died as a result of syphilis. The remaining 8 out of 10 patients with syphilis all succumbed to an unrelated disease process, and the fact that some of them had developed a syphilitic lesion or a positive STS was apparently of no great significance. Treatment of the whole group could then have possibly altered the end result in only the 2 who actually died of syphilis out of 10 untreated cases.

This conclusion, however, does not place proper emphasis on the fact that syphilis is a dynamic disease, static at some times, progressive and developing at others. Certainly an unknown number of the group with incidental syphilitic lesions at autopsy would have died of syphilis had they survived the illness to which they finally succumbed. Some of these syphilitic lesions, if given time to develop, would have progressed to a stage where death would have resulted. Furthermore, the real significance of a positive STS in the absence of anatomic lesions is not fully understood. No doubt the serologic findings in some of these instances reflect the immune state of the host, but in others it may very well represent the reaction to tissue changes unrecognizable by known technics. Insofar as the latter hypothesis is correct, a positive STS may indicate an early phase of a reactive process which, provided the patient lives long enough, ultimately develops into a recognizable anatomic lesion. The value of antisyphilitic treatment should therefore not be gaged in the limited terms of the 2 out of 10 in the Yale group who died of syphilis. Rather is the value of syphilis therapy directly related to the over-all efforts to prolong life by reducing the mortality from oth diseases. Every syphilitic patient sav by sulfonamide preparations or penicil from death due to pneumonia, or appe diceal abscess, or meningitis, or strept coccic infections, becomes liable to dea from syphilis. Every syphilitic patie with malignant disease, or traumatic i juries, or hypertension who is cured surgical intervention becomes ultimate susceptible to death from syphili Viewed in this light, the prompt and ad quate treatment of patients with syphil becomes a life-saving measure out of proportion to the 2 in 10 ratio which this study was the actual death rate fro untreated syphilis.

The above statements have emphasiz mortality as a direct result of syphilit infection and have failed to give prop weight to the influence of syphilis on ho susceptibility to other diseases. Defi tive information on this point is n available, but a preliminary study of t autopsy data from Alabama (*9*) gives t impression that the great difference mortality rate between the syphilitic a control groups in that investigation w due as much to other diseases as syphilis itself. This suggests that ma may have succumbed to an intercurre disease more easily because of syphilit infection. This impression is corrob rated by data in another paper publish in this issue (*6*) which show that the is more morbidity present among u treated syphilitics than among nonsyp litics even in areas not commonly ass ciated with syphilis. It is apparent th a case fatality rate of at least 20 perce is ample justification for the most stren ous efforts to provide prompt and ad quate treatment of all cases. This is t more true since fatalities due to syphi usually follow long periods of disabilit Even when not fatal, there is evidence suggest that syphilis probably lowers li expectancy significantly.

Nevertheless, the evidence at hand do indicate that syphilis is occasionally self-limited disease. In the Yale materi there were 35 patients, 17.7 percent of t total syphilitic group, with a negati STS during their last hospital stay, a ith complete absence of anatomic evience of syphilis at autopsy. From all ndications these patients were spontaneusly cured, demonstrating that a certain proportion of individuals possess adeuate defense mechanisms which can ounteract syphilitic infection and completely eliminate any morphologic evidence of the disease. The exact nature of these defense factors is not known, but heir sum total is encompassed in the general term "host resistance." The recognition that host resistance to syphilis does exist should serve as an impetus to studies in this field.

SUMMARY

1. Of 380 syphilitic patients who were examined post mortem at New Haven Hospital in the period 1917–41, 198 (52.1 percent) never received treatment.

2. Anatomic lesions of syphilis were found in 77 (38.9 percent) of these untreated patients, but only 23.2 percent of the entire group died primarily as a result of syphilis.

3. Anatomic lesions of syphilis were absent in 121 patients (61.1 percent). In 80 (40.4 percent) the STS during the last hospital stay was positive, and in 35 (17.7 percent) it was negative.

4. These findings are in close agreement with the observations of Bruusgaard on the end results of untreated syphilis.

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Untreated Syphilis in the Male Negro

III. Evidence of Cardiovascular Abnormalities and Other Forms of Morbidity

Austin V. Deibert, Senior Surgeon, and Martha C. Bruyere
United States Public Health Service

Two previous papers (*1*, *2*) in this series have described the source of the material and the objectives of the investigation. Briefly, the study is a continuing attempt to follow the natural history of syphilis, uninfluenced by treatment, in adult male Negroes, with special attention to its effect on the cardiovascular system.

The individuals comprising the group being studied were first examined in 1932 and 1933. A report dealing with the physical and laboratory findings of these examinations was published in 1936 (*1*). It was found that among 399 untreated syphilitics and 201 presumably

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A cooperative study project assisted by annual grants from the Milbank Memorial Fund. Initiated under the direction of Taliaferro Clark, M. D. Clinical examinations by O. C. Wenger, M. D.; R. A. Vonderlehr, M. D.; J. R. Heller, Jr., M. D.; and A. V. Deibert, M. D. Follow-up directed by M. Smith, M. D. Postmortem examination by J. J. Peters, M. D. Pathologic examinations by R. D. Lillie, M. D. Statistical analysis by L. J. Usilton, M. A.; P. T. Bruyere, M. D., M. P. H.; and M. C. Bruyere.

uninfected controls, the proportion presenting some evidence of morbid processes of any etiology was considerably higher in the former group, 84 percent, as compared with 39 percent in the latter. Abnormal findings were most frequently associated with the cardiovascular system.

In 1938 and 1939, a second physical examination was made of as many of the original group as could be reached. As might have been expected, it was found that a considerable proportion of the syphilitics had received small amounts of treatment (usually only one or two injections), although 12 individuals had received as many as 10 injections. Also, 14 young untreated syphilitics were examined at that time and added to the study group. The total number of examinations recorded was 423. Of these individuals, 155 were untreated syphilitics, 115 were infected but had received some treatment, and 153 were believed to be nonsyphilitic.

Before the necessary tabulations of the findings from these examinations were completed, an analysis of the comparative mortality in the original syphilitic and control groups was made (*2*). The results of this analysis indicated that the death rate among the syphilitics was more than 75 percent greater than among the controls and the life expectancy approximately 20 percent less, these differences being greatest in the lower age groups.

It is the purpose of the present paper to discuss the over-all results of the second physical examination. While the conclusions corroborate those of the first examination, no direct comparison of the two sets of findings is possible either on a case-by-case basis or through analysis of the material as a whole. There are several facts which would tend to invalidate the comparison of the two examinations case by case, the most important of which is the manner in which the examinations were performed. In the first place, different clinicians carried out the two sets of examinations. This, of course, introduces several biases. The observations requiring a graded but not actually measured recording are not reported in the same manner by different individuals; and in addition, even where quantitative measurements are involved, the clinicians responsible for the respective examinations, because of their particular training and interests, made their measurements in slightly different fashions.

Furthermore, the emphasis of the second examination was intentionally somewhat different from that of the first. Because of the significant cardiovascular findings in the first examination, the well-known high incidence of cardiovascular syphilis in the Negro race and the controversial questions involved in the diagnosis of early uncomplicated syphilitic aortitis, the second examination placed relatively far more emphasis on the examination of the circulatory system than was true of the first examination. More refined technics were used and a greater proportion of the examiner's time was given over to this aspect of the investigation, so that many observations were made for which there were no comparable data in the first examination.

A further consideration which weighed against basing this analysis on the comparison of the first examination of an individual with the second examination of the same individual is the fact that limiting the analysis to those cases for whom both examinations were performed would so reduce the number of cases available for study that few significant conclusions would be reached. By 1938 it was possible to examine only 409 of the original 600-odd patients, and some of these had to be excluded because of a change of status. For instance, when histories were taken at the time of the second examination, it was found that some of the syphilitics had received small amounts of antisyphilitic treatment. The histories were vague and the amounts of treatment involved may very well be negligible, but it was felt that such cases should be excluded from the present analysis in order to be as sure as possible hat the syphilitic group represented only ompletely untreated cases.

Partly in an attempt to compensate or this reduction in number, the second study included some additional untreated syphilitics who had not been examined with the original study group. Also, a small number of patients who were included in the original nonsyphilitic control group acquired syphilis during the period between the two examinations.

A part of the original plan of the study was to have almost identical age distributions in the syphilitic and control groups. This permitted direct comparison of the relative frequencies of any given condition found in members of the two groups, despite the fact that the findings in any physical examination are directly dependent upon the age of the examinee. Unfortunately, this carefully planned characteristic has been lost. Several factors are responsible.

One is the difference in life expectancy that exists between an untreated syphilitic population and a nonsyphilitic population. This has been discussed in the second paper of this series (*2*), where it was shown that the mortality rate for any given age is higher among untreated syphilitics than among nonsyphilitics under the same general conditions. In other words, a larger proportion of the controls than of the syphilitics survived into the older ages. On the other hand, the syphilitics that were excluded from the present analysis because of the possibility of their having received antisyphilitic treatment were for the most part from among the younger age groups. Likewise, the new cases of syphilis that were included at the time of the second examination were in young individuals. These biases, being in opposite directions, might be expected to have a tendency to compensate one for the other. Nevertheless, upon investigation, it was found that significant differences do not exist in the two age distributions.

Since no direct comparison of the original material with the present series is possible, it was decided to employ a method of analysis somewhat different from that of the first report in presenting the findings of the second examination. This was done for the following reason. The differences observed between syphilitic and nonsyphilitic groups with respect to the percentage showing diagnosable disease will decrease with the passage of time. For in the physical examination of any group of people, the proportion in whom definite pathologic conditions can be recognized will naturally increase with advancing age. Thus, in the present instance, if comparisons were made only between the proportions of individuals with various demonstrable disease conditions among the syphilitic group and similar proportions among the control group, real differences which might exist with regard to the duration, severity, extent, or location of the involvement might be hidden. That is, if account is taken only of the proportional number of cases in each group without demonstrable pathologic conditions, and if most of the members in both groups have reached ages at which they can be expected to exhibit some such findings, then the differences will be small and statistical significance could be demonstrated only with very large groups.

With this in mind, it was decided to use the following method of analysis. As in the analysis of the results of the first examination, the question of etiology was not considered. However, instead of assigning and counting specific diagnoses, based in each case upon a consideration of all the findings noted by the examining physician, the individual observations and measurements were themselves tabulated. Descriptive terms are, of course, used where numerical measurements could not be made, but these do not represent specific disease entities. They merely represent observed physical signs possibly pointing toward diagnosable pathologic conditions.

The facts that the physical signs of disease increase in frequency with advancing age and that the relative age distributions of the two groups are no longer similar presented the chief difficulty in evaluation. All the data were analyzed by age. Findings expressed qualitatively were divided into 10- or 20-year-age groups, and comparisons between syphilitics and controls are made only within the respective age groups, not between all the syphilitics and all the controls. Where the findings could be expressed numerically, however, simple regression lines were determined by the method of least squares for each group with age as the independent variable. Tests of statistical significance based on the scatter of the individual observations around the computed lines were made to determine whether the two groups differed at a given age and whether the effect of advancing age was greater in one group than in the other. No measurement investigated revealed significant differences in the effect of age.

Paralleling the first paper in the series, the purpose of the present analysis is to determine whether or not there are indications that syphilis constitutes a predisposing factor to disease regardless of whether the observed pathologic condition can be directly attributed to syphilis. Since, for reasons already discussed, the cardiovascular system was examined in much more detail than the other systems of the body, the greater part of the material is concerned with the physical findings relating to this system.

Some of our tabulations suggest that the diagnosis of uncomplicated syphilitic aortitis may be placed on a sounder basis than has been possible up to the present time; that by means of a combination of various X-ray measurements and their careful correlation with the history and physical findings, a greater proportion of the cases in the early stages of cardiovascular syphilis may be detected. Final analysis and presentation are awaiting the completion of another examination tentatively planned sometime in the near future. The cardiovascular findings will be presented in detail at that time. The present report, therefore, will present only the broader aspects of the cardiovascular examination, limited for the most part to physical findings that can be expressed in numerical or quantitativ terms. For example, the various X-ra measurements of the heart and aort constitute a large proportion of the dat

Figure 1 shows the results of th Vaquez-Bordet aortic measurement (*3*) which is obtained by adding the distanc from a line drawn through the hear parallel to the midsternal line to the outermost point of the shadow of the descending aorta on the left and the distance from the same line to the shadow of the ascending aorta or other great vessels o the right. The upper limit of normal i generally taken to be about 6 cm. Figure 2 represents the results of the measurement of transverse aortic diamete defined by Kreuzfuchs (*4*), which is obtained by measuring the distance from the outermost bulge of the aortic shado on the left horizontally to the right border of the shadow at the point where i impinges upon the barium-filled esophagus, 2 mm. being subtracted to allo for thickness of the esophageal wall. I the normal adult this measuremen should not exceed 3 cm. Figure 3 is base on the measurement of the width of the aortic chord in relation to the width of the thoracic cage as described by Fray (*5*) To obtain this measurement, a film i made with the patient placed as accurately as possible before the cassette a a 45° angle in the left postero-anterio oblique position. On the film a line i drawn from the left costovertebral articulation to the right anterior chest wall at the level of the aortic chord. This i measured and its length divided by the distance across the aortic arch (i. e., the outside dimension of the arch). The resulting index in a normal group studie by Fray was usually 2.0 or more, wherea in a group having known pathologic conditions it was almost invariably les than 2.

As can be seen from the figures, the aortic measurements were more abnormal at all ages among the syphilitics than among the presumably nonsyphilitic controls. The differences observed in the Kreuzfuchs measurement of aortic width (see fig. 2) are not statistically significant; however, at every age the syphilitics ıow more abnormality in some degree. he differences observed between the two groups in both the Vaquez-Bordet and the Fray measurements are highly significant.

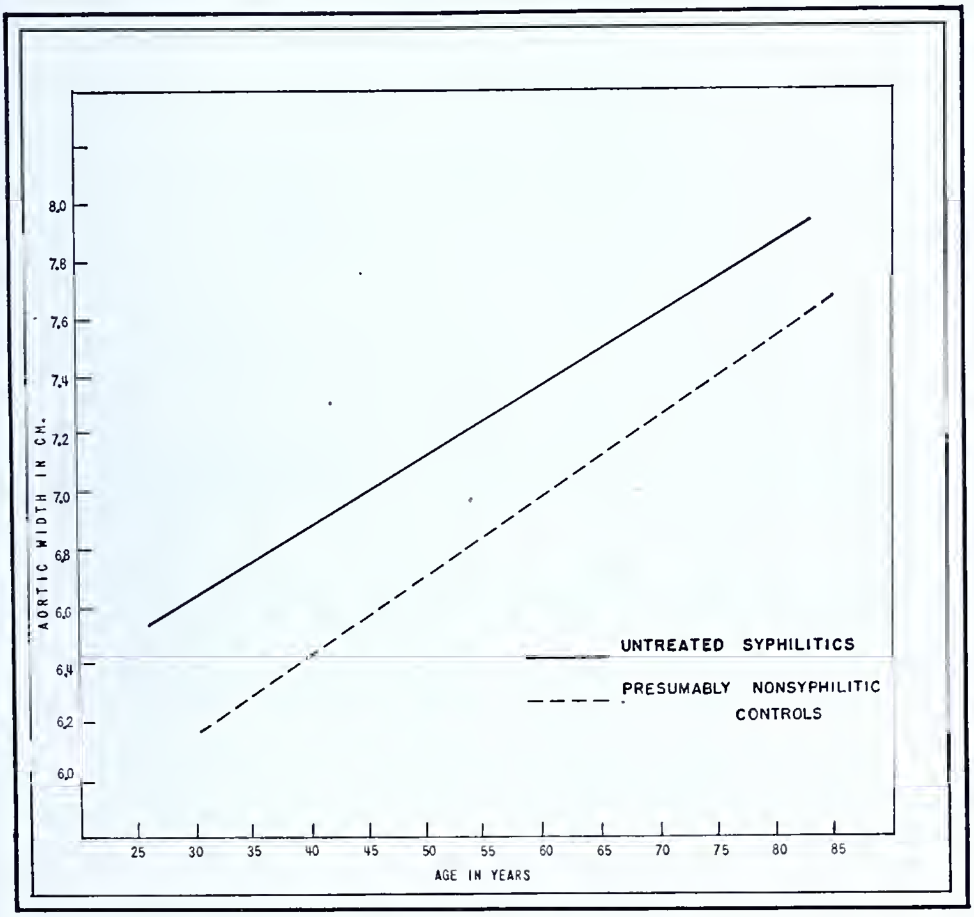

FIGURE 1.—Vaquez-Bordet measurements of the aorta in a group of untreated syphilitic adult Negro males and a comparable group of presumably nonsyphilitic controls; average at each age represented by a computed regression line.

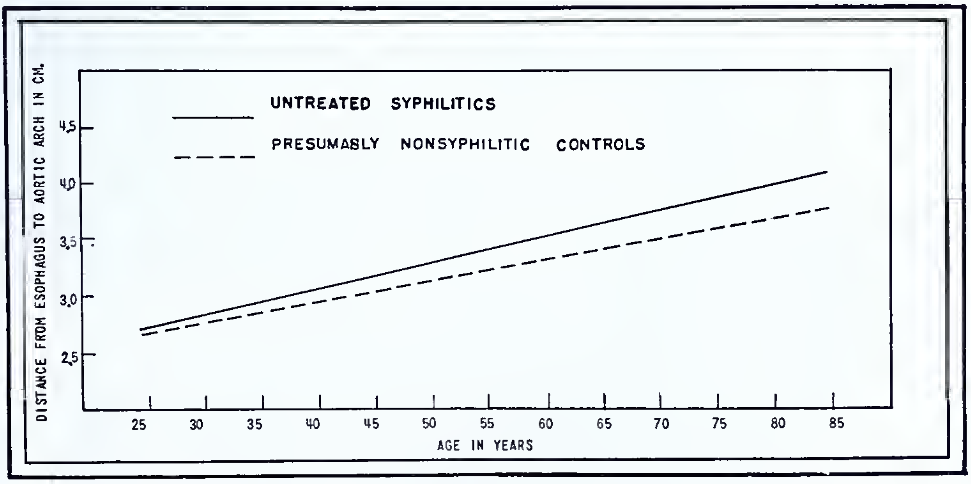

FIGURE 2.—Kreuzfuchs measurements of the aorta in a group of untreated syphilitic adult Negro males and a comparable group of presumably nonsyphilitic controls; average at each age represented by a computed regression line.

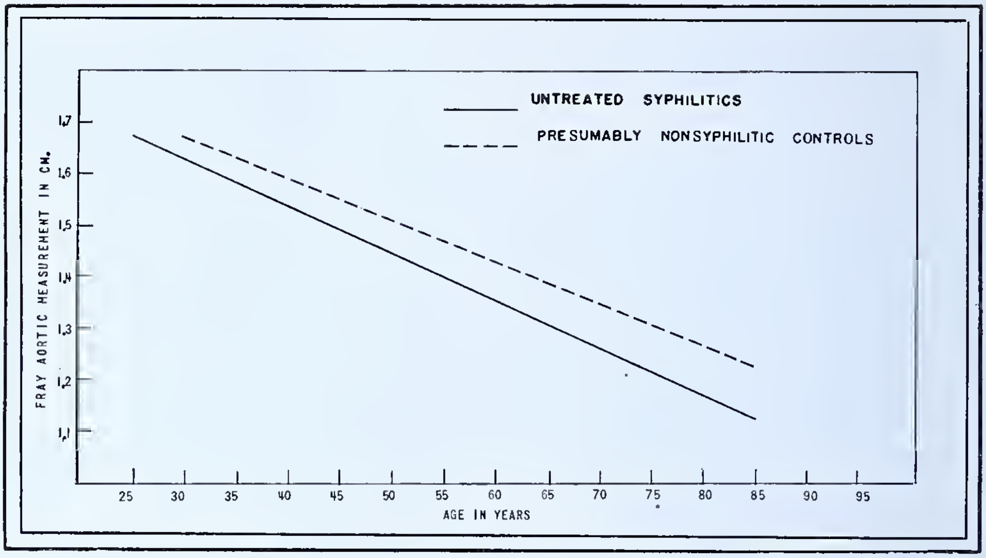

FIGURE 3.—Fray measurements of the aorta in a group of untreated syphilitic adult Negro male and a comparable group of presumably nonsyphilitic controls; average at each age represente by a computed regression line.

Table 1 shows the evidence of dilatation of the ascending portion of the aorta found on fluoroscopic examination. Dilatation increases with age for both the syphilitics and for the controls, of course. However, it can readily be seen that th syphilitics constantly show more abno mality at all ages. None of the contro under 35 years of age showed any ev dence of dilatation, whereas 9 percent

TABLE 1.—*The number and percentage of individuals who presented evidence of dilata tion of the ascending aorta on fluoroscopic examination among a group of untreate syphilitic adult Negro males and a comparable group of presumably nonsyphiliti controls, shown by age*

Age at time of examination	Fluoroscopic examination of the ascending aorta							
	No evidence of dilatation		Evidence of dilatation				Total [1]	
			Inconclusive		Definite			
	Non-syphilitic controls	Un-treated syphilis	Non-syphilitic controls	Un-treated syphilis	Non-syphilitic controls	Un-treated syphilis	Non-syphilitic controls	Un-treated syphilis
	Number							
25–34	25	9	----------	1	----------	1	25	
35–44	29	12	1	3	----------	----------	30	
45–54	34	23	9	11	2	7	45	
55–64	17	30	8	9	3	14	28	
65–74	6	9	6	5	2	11	14	
75 and over	3	1	2	3	----------	3	5	
	Percent							
25–34	100.0	81.8	0.0	9.1	0.0	9.1	100.0	100.
35–44	96.7	80.0	3.3	20.0	0.0	0.0	100.0	100.
45–54	75.6	56.1	20.0	26.8	4.4	17.1	100.0	100.
55–64	60.7	56.6	28.6	17.0	10.7	26.4	100.0	100.
65–74	42.9	36.0	42.9	20.0	14.3	44.0	100.0	100.
75 and over	60.0	14.3	40.0	42.9	0.0	42.9	100.0	100.

[1] This tabulation excludes 9 individuals on whom fluoroscopic examinations were not done.

the syphilitics showed inconclusive evidence of abnormality, and 9 percent were definitely abnormal. Among individuals over 65 years of age, about one-fourth of the syphilitics showed inconclusive evidence of dilatation, as did about 40 percent of the controls. However, definite abnormality was observed in about 40 percent of the syphilitics in this age group as compared with only about 10 percent of the controls. The differences observed in the percentage showing evidence of abnormality on fluoroscopic examination are statistically significant.

Since it is well known that the aorta is a relatively common site of late syphilitic involvement, the above results would more or less be expected. However, other evidences of cardiovascular damage not considered by most authorities to be specifically associated with syphilis also were observed more frequently among the untreated syphilitic group than among the nonsyphilitic individuals. Figures 4 and 5 show X-ray measurements related to the size of the heart. The ratio of the transverse diameter of the heart to the internal diameter of the thorax measured at its widest point just above the diaphragm is the basis of figure 4, and in figure 5 appears Fray's measurement of the relation of the transverse diameter of the heart to the thorax in the left postero-anterior position (*5*). For this measurement, a film is taken with the patient in position as for the aortic chord measurement, and a horizontal line is drawn from the left costovertebral articulation to the right anterior chest wall through the widest part of the cardiac silhouette. A second line is then erected perpendicular at the midpoint of this horizontal line so as to strike a point on the right lateral wall of the trachea immediately above the bifurcation. The reported measurement is the ratio of the length of the first line to the sum of the maximal distance from the second line to the outermost borders of the heart shadow on the right and on the left. In Fray's experience a ratio less than 1.8 indicated enlargement, whereas one greater than 2.0 indicated abnormal decrease in heart size.

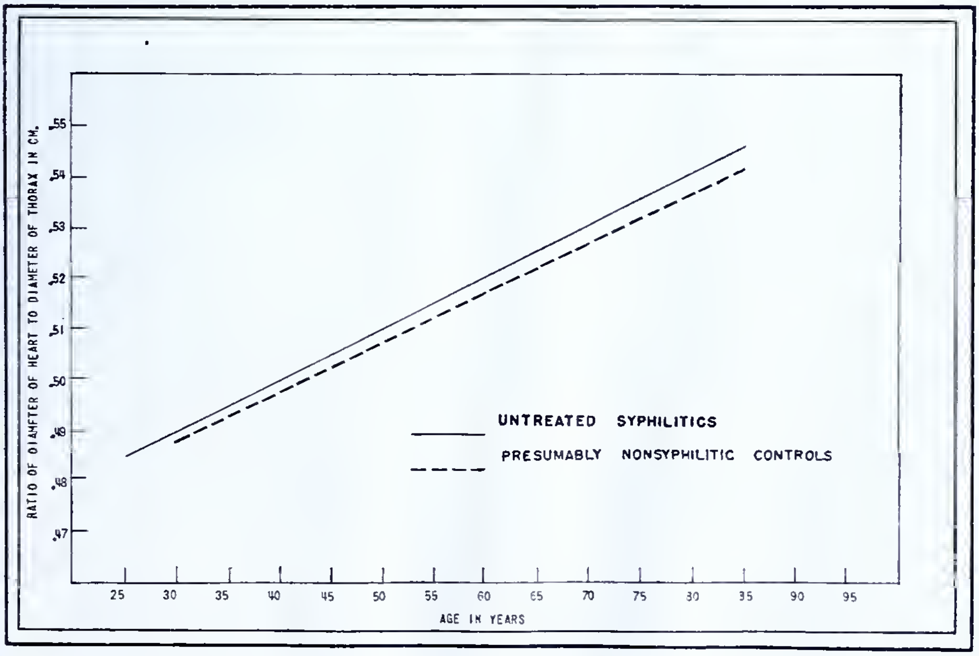

FIGURE 4.—The ratio of the transverse diameter of the heart to the internal diameter of the thorax in a group of untreated adult Negro males and a comparable group of presumably nonsyphilitic controls; average at each age represented by a computed regression line.

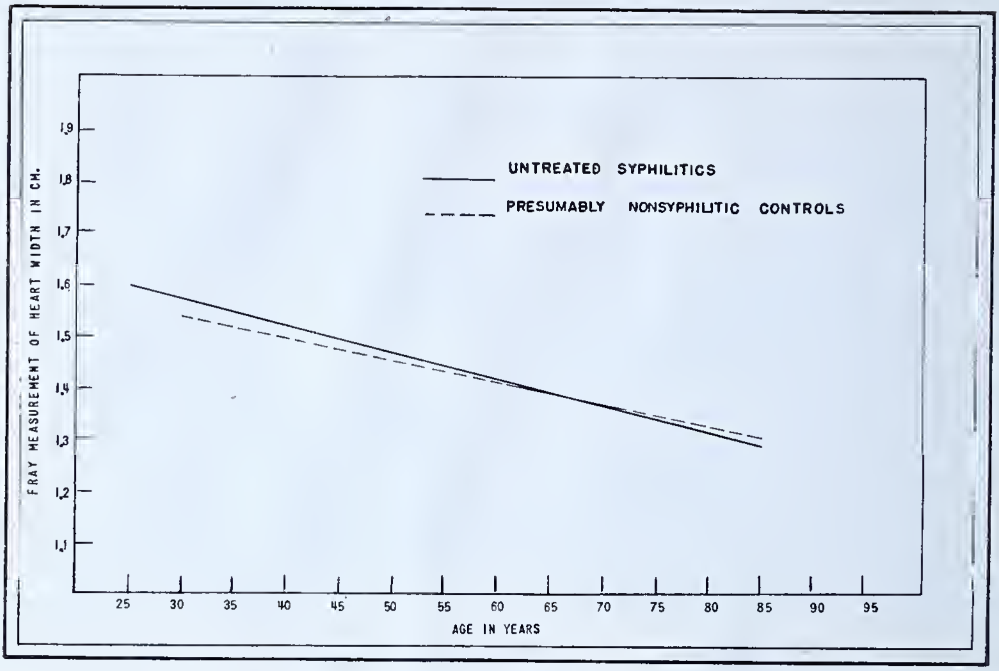

FIGURE 5.—Fray measurement of the heart width in a group of untreated syphilitic adult Negro males and a comparable group of presumably nonsyphilitic controls; average at each age represented by a computed regression line.

The differences observed in these figures are much smaller than those observed in the various aortic measurements. In fact, practically no difference was detected between the two groups in the Fray mensuration of heart size (see fig. 5). However, the measurements shown in figure 4 indicate the presence of more abnormality among the syphilitic group.

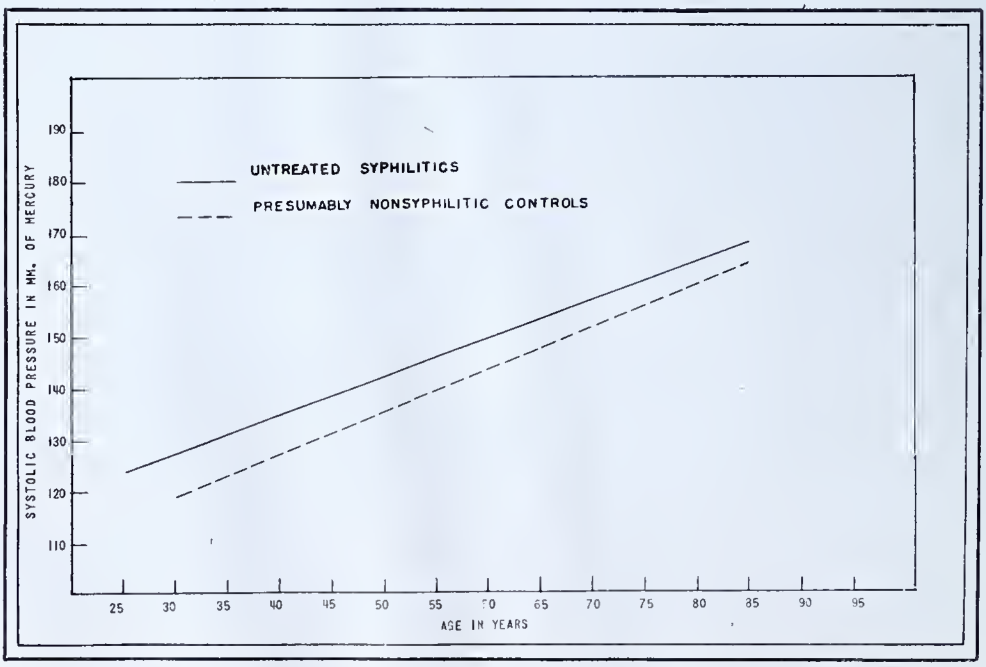

FIGURE 6.—The measurement of systolic blood pressure in a group of untreated adult Negro males and a comparable group of presumably nonsyphilitic controls; average at each age represented by a computed regression line.

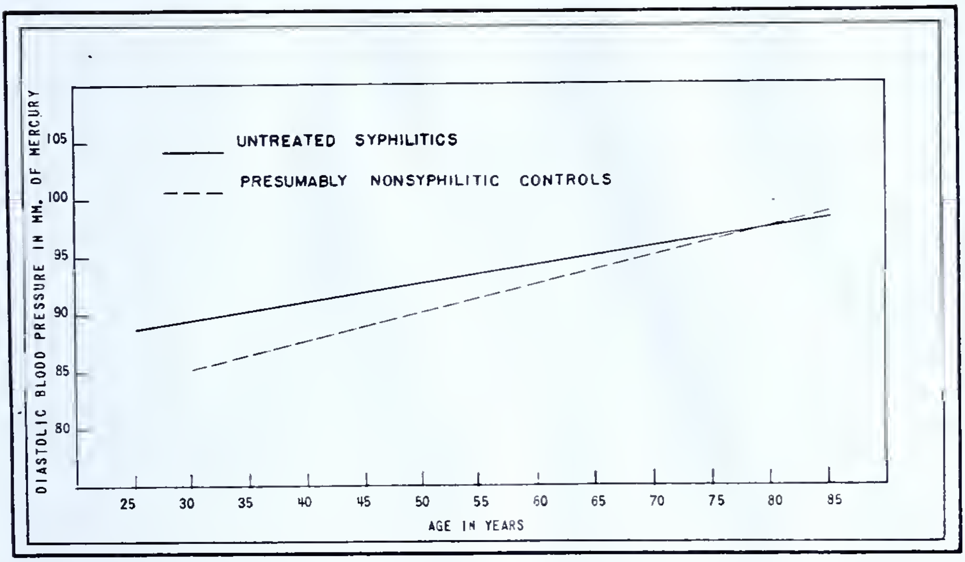

FIGURE 7.—The measurement of diastolic blood pressure in a group of untreated syphilitic adult Negro males and a comparable group of presumably nonsyphilitic controls; average at each age represented by a computed regression line.

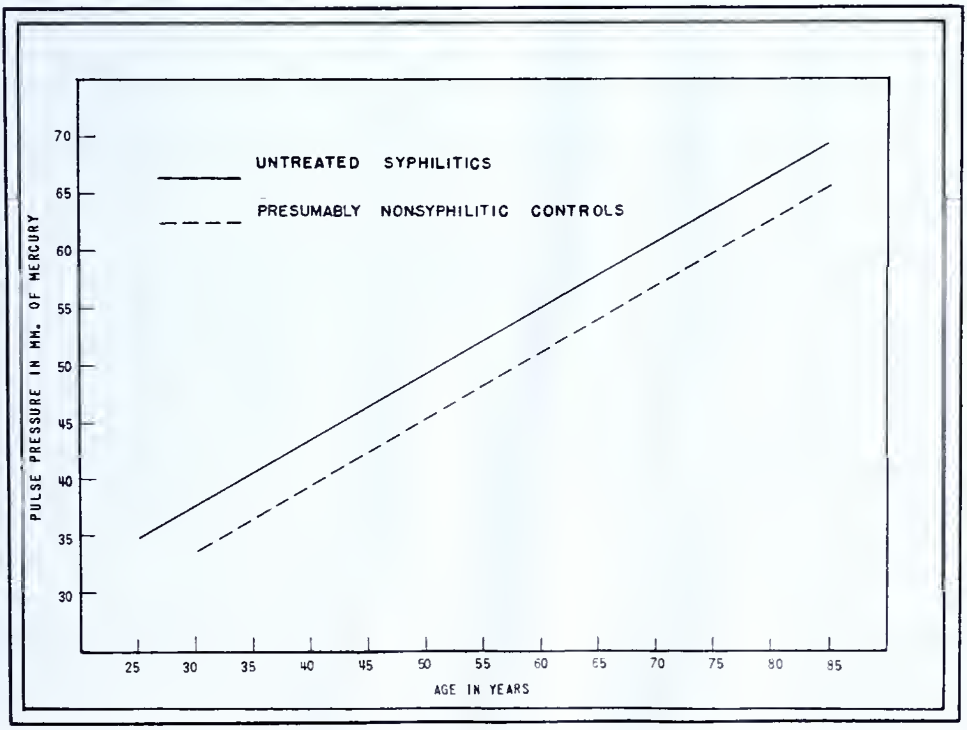

FIGURE 8.—The measurement of pulse pressure in a group of untreated syphilitic adult Negro males and a comparable group of presumably nonsyphilitic controls; average at each age represented by a computed regression line.

The systolic and diastolic blood pressures and their difference (the pulse pressure) were investigated, and the results are shown in figures 6, 7, and 8. Increased blood pressure, of course, results from a variety of causes, and syphilis is not commonly believed to be a significant etiologic factor. In fact, a diagnosis of uncomplicated syphilitic aortitis is usually considered to be unreliable in the presence of a coexisting hypertension. It is the more interesting, then, that both the systolic and diastolic blood pressures were higher among syphilitics than among nonsyphilitics, and that the pulse pressure among the syphilitic group was also greater.

The radial, brachial, temporal, and retinal vessels were examined for evidences of the presence of arteriosclerosis. The results are tabulated in table 2. The retinal vessels apparently do not become involved until late in life, and no differences were noted between the two groups. In no instance, either among the syphilitics or among the controls, was evidence of arteriosclerosis observed in the retinal vessels among persons under 45 years of age, and there was no difference found in the proportion of such cases from one group to the other in older individuals. However, examination of the radial, brachial, and temporal vessels did reveal evidence of arteriosclerosis more frequently in the syphilitic than in the control group. Statistical tests showed that, in the younger ages, the percentage of the syphilitics in which evidence of arteriosclerosis could be detected is significantly greater than the corresponding percentage of the controls.

Table 2.—*The number and percentage of individuals revealing signs of arteriosclerosis in an examination of the radial, brachial, temporal, and retinal vessels among a group of untreated syphilitic adult Negro males and a comparable group of presumably nonsyphilitic controls, shown by age*

Age in years	No definite signs of arteriosclerosis				Evidence of arteriosclerosis				Total *			
	Syphilitics		Controls		Syphilitics		Controls		Syphilitics		Controls	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
	Radial vessels											
25-34	11	100.0	26	100.0	------	0.0	------	0.0	11	100.0	26	100.0
35-44	13	86.7	27	84.4	2	13.3	5	15.6	15	100.0	32	100.0
45-54	14	34.1	21	46.7	27	65.9	24	53.3	41	100.0	45	100.0
55-64	5	9.8	4	13.3	46	90.2	26	86.7	51	100.0	30	100.0
65 and over	------	0.0	1	5.6	32	100.0	17	94.4	32	100.0	18	100.0
	Brachial vessels											
25-34	11	100.0	26	100.0	------	0.0	------	0.0	11	100.0	26	100.0
35-44	12	80.0	27	84.4	3	20.0	5	15.6	15	100.0	32	100.0
45-54	13	31.7	22	48.9	28	68.3	23	51.1	41	100.0	45	100.0
55-64	5	9.6	4	13.3	47	90.4	26	86.7	52	100.0	30	100.0
65 and over	------	0.0	1	5.9	32	100.0	16	94.1	32	100.0	17	100.0
	Temporal vessels											
25-34	11	100.0	26	100.0	------	0.0	------	0.0	11	100.0	26	100.0
35-44	13	86.7	29	90.6	2	13.3	3	9.4	15	100.0	32	100.0
45-54	23	56.1	33	73.3	18	43.9	12	26.7	41	100.0	45	100.0
55-64	16	30.8	16	51.6	36	69.2	15	48.4	52	100.0	31	100.0
65 and over	9	29.0	3	16.7	22	71.0	15	83.3	31	100.0	18	100.0
	Retinal vessels											
25-34	11	100.0	26	100.0	------	0.0	------	0.0	11	100.0	26	100.0
35-44	15	100.0	32	100.0	------	0.0	------	0.0	15	100.0	32	100.0
45-54	32	78.0	36	81.8	9	22.0	8	18.2	41	100.0	44	100.0
55-64	18	34.6	12	40.0	34	65.4	18	60.0	52	100.0	30	100.0
65 and over	2	8.0	------	0.0	23	92.0	17	100.0	25	100.0	17	100.0

* The above tabulations exclude varying numbers of individuals for whom parts of the physical examination were not recorded. The following numbers were omitted for the individual sections: Radial vessels, 7; brachial vessels, 7; temporal vessels, 6; retinal vessels, 15.

The other systems of the body were not examined in as much detail as was the cardiovascular system, nor were laboratory diagnostic aids employed to any great extent. A thorough physical examination was made, however, and the abnormalities observed were noted on the case records. In analyzing the results, a single tabulation was prepared for each system of the body, comparing the proportion of individuals with any abnormality involving that system in the two groups and giving details concerning the individual abnormalities where the data permitted.

It was found that no system of the body showed significantly more evidence of morbidity among individuals of the control group than was found among the individuals infected with syphilis. Further, no system having differences too small to be significant exhibited a consistent pattern of differences pointing toward more abnormality among the uninfected group. Thus the tabulation of data relating to the skin, skeletal, auditory, and upper respiratory systems revealed no difference in morbidity between the two groups. Such differences as were observed, all of them small enough to be consistent with the hypothesis that they arise through chance alone, were not all in the same direction.

On the other hand, the examination did reveal differences for some systems of the body, which, while not large enough to be significant, were consistently all in the direction indicating more morbidity among the syphilitic study group. Moreover, some systems showed unquestionable differences in this direction. Table 3 presents the results of the physical examination of the lymph nodes, the eyes, the pulmonary system, the genitourinary system, and the neurologic apparatus.

Section A of table 3 is a summary of the abnormal findings observed in examining the lymph nodes. A significantly greater percentage of the syphilitic cases than of the controls gave evidence of abnormal conditions of the lymph nodes. In every age group the percentage of cases showing pathologic changes in the lymph nodes is greater among the syphilitics. Furthermore, the difference is greatest in the youngest age group. The inguinal, epitrochlear, and cervical regions are the only three sites in which lymph node abnormalities were noted in either group with sufficient frequency to permit analysis. All these exhibited more frequent abnormal conditions among members of the syphilitic group.

The results of examination for pathologic conditions involving the eye (other than the optic nerve) are presented in section B of table 3. Both the number of individuals showing eye involvement and the total number of eye conditions observed are shown, the latter being subdivided into several categories. With regard to the proportion of individuals showing eye defects there was no significant difference between the syphilitic and control groups, the percentage found in the syphilitics being slightly higher in the youngest age group and slightly lower in the other two. However, it was observed that the differences in the total number of defects in relation to the number of individuals examined in the two groups were much more marked, considerably fewer defects being noted among the nonsyphilitics. Likewise, it was found that the nonsyphilitics exhibited a smaller proportion of affected individuals in each of the specific categories listed except that of "cataract," where it appeared that cataracts were slightly more frequent among nonsyphilitics.

The visual acuity among the two groups is shown in figure 9. It was found that the relationship of visual acuity to age could not be properly represented by a straight line, so the data were fitted to a parabola instead. No significant differences were found to exist between the right and left eye in either group. The recordings for the two eyes were combined, therefore. As can be seen from the figure, the syphilitics exhibited more loss of vision at all ages than did the controls. While the difference between the curves representing their average visual acuity at each age is not statisti-

Table 3.—*Number and percentage by age of individuals showing physical defects and/or evidence of disease involving the lymph nodes, the eyes, the pulmonary system, the genitourinary system, and the nervous system among a group of untreated syphilitic adult Negro males, and a comparable group of presumably nonsyphilitic controls*

A. Proportion showing involvement of the lymph nodes

Age in years	Total number examined [1]	Total cases with lymph node involvement		Site of involvement							
				Inguinal region		Epitrochlear region		Cervical region		Other regions	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
						Syphilitics					
25–34	11	4	36.4	4	36.4	3	27.3	2	18.2	-------	0.0
35–44	15	3	20.0	3	20.0	1	6.7	1	6.7	-------	0.0
45–54	42	9	21.4	4	9.5	6	14.3	-------	0.0	-------	0.0
55–64	54	8	14.8	8	14.8	6	11.1	3	5.6	1	1.9
65 and over	32	6	18.8	4	12.5	2	6.3	3	9.4	2	6.3
						Controls					
25–34	26	3	11.5	2	7.7	2	7.7	-------	0.0	1	3.8
35–44	32	6	18.8	4	12.5	2	6.3	-------	0.0	-------	0.0
45–54	45	5	11.1	4	8.9	3	6.7	-------	0.0	1	2.2
55–64	31	4	12.9	4	12.9	3	9.7	1	3.2	1	3.2
65 and over	19	2	10.5	2	10.5	1	5.3	1	5.3	1	5.3

B. Proportion showing involvement of the eyes

Age in years	Total number examined [1]	Cases having eye defects		Total eye defects found		Eye defects observed											
						Lesions of the cornea		Lesions of the lens		Lesions of the retina		Lesions of the choroid		Cataracts		All other defects [2]	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
									Syphilitics								
25–44	26	3	11.5	3	11.5	----	0.0	----	0.0	1	3.8	1	3.8	----	0.0	1	3.8
45–64	96	23	24.0	41	42.7	3	3.1	7	7.3	10	10.4	15	15.6	1	1.0	5	5.2
65 and over	32	18	56.3	26	81.3	4	12.5	9	28.1	5	15.6	4	12.5	4	12.5	----	0.0
									Controls								
25–44	58	4	6.9	4	6.9	----	0.0	----	0.0	----	0.0	----	0.0	1	1.7	3	5.2
45–64	76	192	5.0	24	31.6	2	2.6	1	1.3	4	5.3	9	11.8	2	2.6	6	7.9
65 and over	19	136	8.4	14	73.7	----	0.0	6	31.6	1	5.3	3	15.8	4	21.1	----	0.0

C. Proportion showing involvement of the pulmonary system

Ages in years	Total number examined [1]	Cases showing evidence of pathologic conditions of pulmonary system	
		Number	Percent
	Syphilitics		
25–34	11	1	9.1
35–44	15	1	6.7
45–54	42	4	9.5
55–64	54	22	40.7
65 and over	32	25	78.1
	Controls		
25–34	26	1	3.8
35–44	32	-------	0.0
45–54	45	2	4.4
55–64	31	14	45.2
65 and over	19	14	73.7

D. Proportion showing involvement of the genitourinary system

Age in years	Total number examined [1]	Cases showing evidence of pathologic conditions of genitourinary system	
		Number	Percent
	Syphilitics		
25–34	11	1	9.1
35–44	15	6	40.0
45–54	41	8	19.5
55–64	55	15	27.3
65 and over	32	10	31.3
	Controls		
25–34	26	1	3.8
35–44	32	5	15.6
45–54	45	8	17.8
55–64	31	6	19.4
65 and over	19	4	21.1

E. Proportion showing involvement of the nervous system

Age in years	Total number examined [1]	Cases showing evidence of pathologic conditions of nervous system	
		Number	Percent
	Syphilitics		
25–44	26	1	3.8
45–64	96	13	13.5
65 and over	32	7	21.9
	Controls		
25–44	58	1	1.7
45–64	76	8	10.5
65 and over	19	4	21.1

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[1] Each of the above tabulations excludes 1 individual on whom these parts of the physical examination were not done.

[2] Includes eye defects which were observed in fewer than 5 cases in both groups.

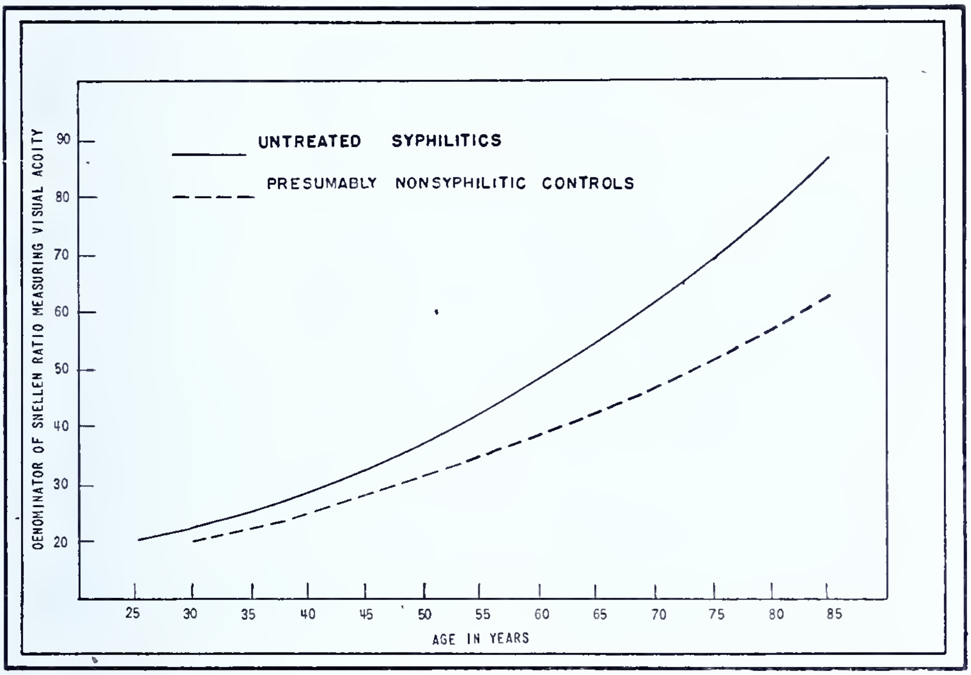

FIGURE 9.—The measurement of visual acuity in a group of untreated syphilitic adult Negro males and a comparable group of presumably nonsyphilitic controls; average at each age represented by a parabola.

cally significant, nevertheless, it probably represents a real rather than a chance difference, since it is corroborated by the fact that qualitative eye defects were also observed more commonly among the syphilitic group (see table 3, sec. B).

Section C of table 3 deals with evidence of pulmonary disease. The differences observed are small and are by no means significant. The three younger age groups all show a higher percentage of cases with abnormality among the syphilitics. The older ages show little difference from one group to another. Individuals aged 55 to 64 years show slightly more abnormality among the controls, while the older groups, over 64 years of age, show slightly more abnormality among the syphilitics. That the indications pointing toward the presence of more disease among the syphilitics in the younger ages probably represent an actual tendency is evidenced by the fact that six of the syphilitic patients showed definite evidence of pathologic lung conditions as compared with only three of the control group.

The percentage of cases showing evidence of abnormality involving the genitourinary system is given for the two groups in section D of table 3. Here again, significant differences could not be demonstrated. However, in every age group, the small differences observed were in the direction of a higher percentage of the syphilitic group with evidence of possible genitourinary disease than was true of the group that did not have syphilis.

Much the same pattern can be seen in section E of table 3 which shows the cases presenting some evidence of disease of the nervous system. In the three large age groupings listed, 3.8 percent, 13.5 percent, and 21.9 percent, respectively, of the syphilitics showed possible or definite nervous system abnormality. The corresponding percentages among the controls were 1.7, 10.5, and 21.1.

DISCUSSION

The above findings viewed as a whole lead to the conclusion that an untreated syphilitic population exhibits appreciably more morbidity than an uninfected population of similar characteristics and environment.

That syphilis is a serious disease and, in the absence of treatment, may become a source of much suffering and disability is well known. But specific definition and quantitative evaluation of these effects are incomplete because an opportunity to study the natural course of the disease in individuals not subjected to specific therapy occurs so infrequently. Two recent reports have considerably increased the available information on these points. Rosahn (7) has adduced evidence, based on a series of hospital autopsies, that even when death from paresis is excluded, approximately 2 out of 10 individuals with untreated syphilis die as a direct result of their infection. Heller (2) found that among the subjects forming the basis of the present study, the over-all mortality from all causes during a 12-year period of observation was more than 75 percent greater in the untreated syphilitics than in the uninfected controls.

The present discussion indicates that the living syphilitic not specifically treated for his infection is subject to a considerably greater amount of physical disability, not necessarily fatal, than an uninfected person living under similar conditions. Such impairment of bodily functions may be directly caused by the syphilis, or may be the result of greater susceptibility to other morbid conditions. Considering these results in conjunction with the findings of Rosahn and Heller, it is clear that in the absence of treatment the person infected with syphilis, even though he may escape the late crippling manifestations which lead directly to death, still runs a considerable risk o having his life span shortened by othe fatal conditions. In addition, he can expect to experience more manifestation of ill health of all kinds than do uninfected persons.

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CURRENT LITERATURE

Note: Abstracts of any article listed below are available on request. In addition, abstracts of all articles concerned with venereal diseases or related subjects which have been published in the better known journals both here and abroad during the past 20 years are in the files. These are open to workers in the field. An asterisk (*) before a title indicates that the article is abstracted below.

Am. J. Trop. Med., Baltimore

*A unitarian view of treponematosis. Ellis Herndon Hudson. 26: 135–139, Jan. 1946.

A unitarian view of treponematosis.—The author presents a concept of syphilis and yaws as both forms of treponematosis, a universally distributed acute and hronic infection caused by a treponeme, ropagated both venereally and nonvene-eally, and susceptible to treatment with he heavy metals.

Treponematosis is of unknown origin, ut it is thought that saprophytes, bio-ogic relatives of the treponeme, first stablished themselves in some moist, hot limate as a parasite of man, entering the ody through a break in the skin. Subse-uent propagation occurred by means of lose contact between individuals har-oring sores teeming with treponemes, while migration and commerce carried he disease to more temperate climates. mprovement in sanitary conditions, es-pecially in the temperate zone and in urban communities, gradually restricted the treponeme to transmission, for the most part, from one adult to another through sexual intercourse.

Since the turn of the century, a greater amount of attention has been devoted to venereal treponematosis (syphilis) than to nonvenereal treponematosis (yaws and others) because of the more outstanding problems of diagnosis, treatment, and mortality. In reality, the organisms of syphilis and yaws are claimed to be indistinguishable, and lesions produced by them are difficult to differentiate, yaws being often considered a primitive and tropical form of syphilis.

Since Treponema pallidum must make the transfer from one person to another by direct contact, in tropic zones among primitive rural people ignorant of sanitation, opportunities for such contact are innumerable, particularly among children, a fact which accounts for the childhood acquisition of yaws and bejel. In temperate climates and in civilized communities, transmission by children becomes less frequent and treponematosis takes on a venereal epidemiology, the prostitute and a small portion of the adult male population becoming the chief reservoir of infection. Whether venereal or nonvenereal treponematosis is predominant in a given locality at a given time depends upon many environmental factors—climatic, economic, sociologic, and medical. Both venereal and nonvenereal treponematosis may therefore be present within a narrow compass, such as syphilis in a town and yaws in the surrounding rural area.

The author suggests that the syphilologist who treats venereal treponematosis and the physician who treats the various nonvenereal infections under their local names both think in terms of the disease as a whole, or as treponematosis.

BOL. OFIC. SAN. PANAM., WASHINGTON

*Advances in venereal disease control. J. R. Heller, Jr. 25 : 27–31, Jan. 1946.

Centro de adiestramiento y dispensario para el control de las enfermedades venéreas, establecido en México, D. F. Secretaria de Salubridad y Asistencia. (Mexican training center for control of venereal diseases.) 25 : 331–334, Apr. 1946.

Advances in venereal disease control.—The author discusses international cooperation in venereal disease control. The exchange of information regarding source and spread of infections has already been established in the Western Hemisphere, and during the war the United States Public Health Service developed a system for forwarding to appropriate health agencies throughout the world the names and addresses of persons reported as contacts of infected patients under health jurisdictions of the United States.

The exchange of medical information among health authorities of different countries is another useful means of international cooperation in venereal disease control. The United States Public Health Service has made freely available to physicians of other nations information regarding new treatment methods used in the United States.

The author describes the development of short schedules of therapy for both syphilis and gonorrhea and the organization of special hospitals known as rapid treatment centers.

Education of the public as to the symptoms and spread of venereal disease infection is the most successful case-finding method. The value of public education is discussed in connection with clinic admissions and mass blood testing surveys in several cities. Results of blood testing of Selective Service registrants are discussed.

Bull. Johns Hopkins Hosp., Baltimore

Penicillin treatment of Erb's syphilitic spinal spastic paraplegia. Report of four cases, one with autopsy. Harold A. Tucker. 78 : 161–179, Apr. 1946.

Bull. Sanitaire, Montreal

The serological laboratory of the Quebec ministry of health. Twenty-five years of service. Jules Archambault. 46 : 3–8, Mar.–Apr. 1946.

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Canad. M. A. J., Montreal

*The use of aldarsone in the treatment of neuro-syphilis. George B. Sexton. 54 : 561–564, June 1946.

Functions of Federal and Provincial venereal disease control divisions. V. D. Briefs. 54 : 604, June 1946.

The use of aldarsone in the treatment of neuro-syphilis.—This paper concerns 54 patients who were given 2,176 injections of aldarsone for the treatment of neurosyphilis.

Aldarsone, a pentavalent arsenical, is a condensation product of 3-amino-4-hydroxyl-phenylarsonic acid with sodium formaldehyde sulfoxylate. In use, the drug is dissolved in 10 cc. of sterile water, the initial dose being 0.25 gm., increasing to a maximum of 1 gm. Aldarsone is said to have a spirochetal power superior to that of tryparsamide.

The patients in this study were divided into three groups, according to treatment:

1. Aldarsone combined with fever therapy. In most of these 36 cases, 10 injections of aldarsone preceded fever therapy, followed by 10 exposures of fever with a total of 70 hours at 105°. In addition, 2 grains of bismuth salicylate were administered to the patients while in the cabinet. Results are given in detail for patients having asymptomatic neurosyphilis, dementia paralytica, tabo-paresis, tabes dorsalis, and transverse myelitis.

2. Aldarsone plus other chemotherapy. Eight patients received an average of 20 injections of aldarsone followed by tryparsamide therapy (2 gm.). All these patients tolerated the drug well with the exception of one woman who developed a typical nitritoid reaction.

3. Aldarsone alone. Five detailed case histories are presented of patients treated with aldarsone alone. Two of the cases which combined early paresis with essential hypertension had complete reversal of spinal fluid serologic reaction and permanent reduction of blood pressure. Another case combining paresis with aortic aneurysm made an excellent response, and six cases of asymptomatic neurosyphilis had negative spinal fluids, although one case of tabo-paresis showed little response after 30 injections.

The author concludes that aldarsone is an arsenical of relatively high therapeutic efficiency and low toxicity which may be used with artificial fever and penicillin to improve the results in symptomatic neurosyphilis. However, while aldarsone was well tolerated in the majority of cases, four untoward reactions consisting of herpes zoster, exfoliative dermatitis, constriction of visual fields, and nitritoid crisis were observed.

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